

# Dependence of Livestock Rearers on Common Lands:

## A Scoping Study



*Report for the South Asia Pro Poor Livestock Policy Programme (SA PPLPP)*

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December 2010

**SOUTH ASIA**  
**Pro Poor Livestock Policy Programme**

A joint initiative of NDDB and FAO

***Suggested Citation:*** SA PPLPP (2011), “Dependence of Livestock Rearers on Common Lands: A Scoping Study”

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## **Introduction**

The present study is a review of the Good Practice documentation by SA PPLPP, supplemented with desk research on emerging issues and macro perspectives, field visits in Rajasthan and Orissa, and meetings with experts and practitioners.

The first part of the study looks at the available secondary research on livestock and the poor, to identify critical emerging trends in livestock, common property resources (CPRs) and livelihoods. Much has changed since the first research by N.S. Jodha in the early 1980s on the contribution of CPRs for the poor. The scope of this modest study is limited to a desk review of literature and trends in livestock and CPRs from a range of sources, including reports, various publications and livestock census data over the past two decades. The aim was to position the CPRs-Livestock-Livelihoods trends against a historical perspective and to highlight the contribution of CPRs against this changing livelihoods scenario, as a basis for reviewing the key findings and learning from SA PPLPP documentation.

In the second part, the study builds on desk research with a limited number of visits to a few project areas, where the documentation of approaches had been undertaken by SA PPLPP, with the objective of assessing current management practices, community norms for distribution of benefits from these protected lands, as also community perceptions on the criticality of CPRs to their livelihoods. Projects of the Foundation for Ecological Security (FES) and BAIF Development Research Foundation (BAIF) in central Rajasthan and in Orissa (FES), meetings with staff from these two agencies, the engagement in a parallel quantitative research by FES on commons, and the opportunity to engage with experts and practitioners from other agencies during this research have contributed greatly to the analysis for this report.

The findings in this section are indicative of the potential for the development of common lands for fodder and the management options practised. Much of this has been documented in detail by different organizations and the SA PPLPP Good Practice documentation, which includes bio-physical changes, impact on livelihoods, and issues related to institutional management, equity and access to CPRs. The purpose of this study is not to validate this large body of work, but to assess the situation on the ground from community perceptions and insights of practitioners.

The study is a modest effort in bringing together various perspectives in livestock development and CPRs, identifying key challenges and suggesting priority areas for policy advocacy in the coming years.

I am grateful to Tinni Sawhney and Sheila Koyyana of the SA PPLPP team, and the Board of SA PPLPP, for the opportunity provided to review the Good Practice documentation by SA PPLPP and to ascertain the emerging lessons in light of macro developments in the livestock and CPR regime in India.

## Executive Summary

The study has looked at issues of common lands, and the livestock and livelihoods supported by the commons. The results are based on a modest desk research of secondary literature, the documentation by the South Asia Pro Poor Livestock Policy Programme (SA PPLPP), visits to project areas, and meetings with practitioners in a few states.

### Common Lands and Livestock: Status and Trends

*Common property resources are defined as resources accessible to the whole community of a village and to which no individual has exclusive property rights. In the dry regions of India, these include village pastures, community forests, wastelands, common threshing grounds, waste dumping places, watershed drainages, village ponds, tanks, rivers/rivulets and riverbeds.*<sup>1</sup> Common lands are under increasing pressure of encroachment, privatization and allotment for purposes other than those of use to the local community. The **extent of common lands in India** is estimated at 23.97 per cent of the total land mass (this includes seven out of the nine land-use categories<sup>2</sup>). However, on account of increasing encroachment, the extent of available common lands may be much less than this. The extent of land unfit for vegetation (urban areas, i.e. cities and towns, rivers, roads, regions under permanent snow and deserts) is estimated at 17 per cent.

Land-use type	2000-01
1. Total geographical area (ASI)	328.73
2. Owned land (AC)	159.44
3. Net sown area (ASI)	141.36
4. Current fallows (ASI)	14.78
5. Private land with common access (2 – 3 – 4)	3.30
6. Cultivable wastes (ASI)	13.63
7. Other fallows (ASI)	10.29
8. Common pastures and grazing land (ASI)	10.67
9. Land under miscellaneous tree crops (ASI)	3.44
10. Non-forest common pool resource (5 + 6 + 7 + 8 + 9)	41.33
11. As % of total area	12.57%
12. Protected forest (SFR)	23.84
13. Other forest (SFR)	13.64
14. Common pool resource including forests (10 + 12 + 13)	78.81
15. As % of total area	23.97

It has long been held that **livestock holding** is more equitably distributed than private agricultural landholding. Common lands are, therefore, a critical livelihood resource for landless, small and marginal farmers. Hence, the priority need is to protect and invest in common land development, both from the livelihoods perspective as also on account of ecological considerations (for example, water conservation and bio-diversity).

Livestock growth in India is characterized by increasing numbers of small ruminants (goats and sheep) and a substitution of cattle with buffaloes. This change has been brought about by the Green Revolution-induced

<sup>1</sup> NS Jodha, Common Property Resources and Rural Poor in Dry Regions of India, *Economic and Political Weekly*, Vol. 21 No. 27 (July 5, 1986), pp. 1169–81.

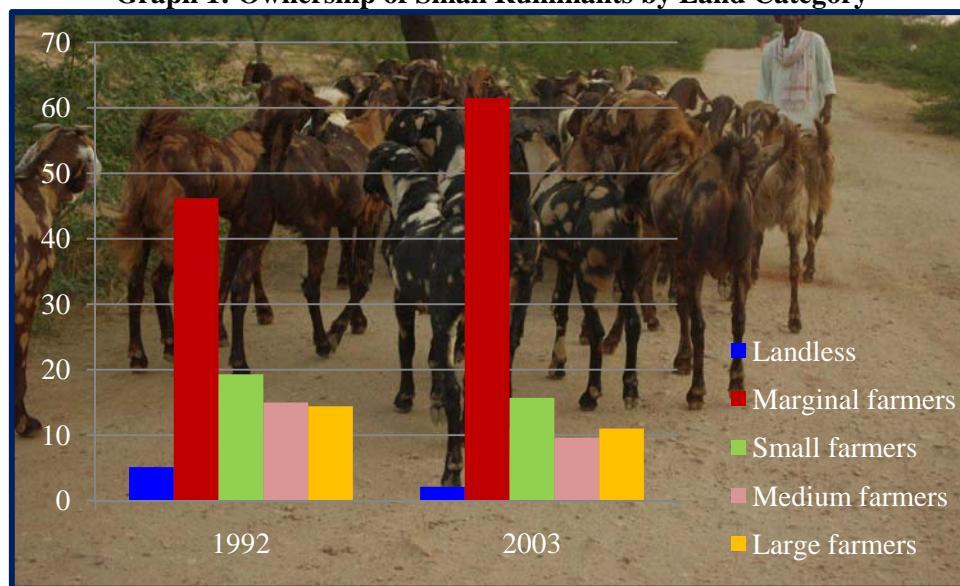
<sup>2</sup> Forest lands, culturable waste, permanent fallows, permanent pastures and other grazing lands, barren and uncultivable land, land under miscellaneous trees and crops.

<sup>3</sup> Sources: Agricultural Statistics of India (ASI, 2005-6); Agricultural Census (AC, 2002); State of Forest Report (SFR, 2003). While latest data for 2007-08 from ASI and for 2005 from the Forest Survey of India is available, the latest data provided by the Agricultural Census is for 2000-01, hence, Table 1 shows 2000-01 figures.

mechanized agriculture that has reduced the demand for bullocks and cattle, and the growing market for meat. The sheep population has not increased significantly, owing to stagnation in the market for wool. Given the diversity of India, different states show variations from the national trend, primarily on account of agro-ecological reasons, and differing preference for meat and milk products.

Ownership of goats and sheep by marginal farmers is the highest among all categories of livestock owned (at more than 60 per cent). Other categories of landowners hold more of large ruminants than goats and sheep (as per the 2003 Livestock Census). **Hence, the need for livestock policies to focus on supporting small ruminants and common land development, particularly across India’s dry-land regions, where livestock rearing is a key livelihood activity.**

**Graph 1: Ownership of Small Ruminants by Land Category**



**How are people coping with the change?**

A trend in favour of commercial agriculture and commercial livestock rearing is evident, with farming communities in the semi-arid regions relying more on buffaloes, small ruminants and poultry rearing, and with changes in household livestock holding patterns to maximize returns. However, this does not mean that intensification of livestock holding is being accommodated by increasing fodder and crop residue from agriculture. Open grazing sustains not only goat and sheep but also the buffalo and cross-bred cow populations in most dry-land regions<sup>4</sup>. Investments in veterinary care and milk collection, chilling plants and marketing infrastructure, therefore, need to be intensified in these regions.

The tribal sub-humid and dry-land regions of India need to be recognized for their contribution to milk production and the potential they have for poverty reduction and environment sustainability, with investments in the protection and regeneration of common lands in the coming decades. If this investment is not undertaken, the livestock holding of the landless will continue to decline. The ownership of livestock by landless households lessened significantly over the 1992–2002 period for which NSSO data is available. Landless households constituted 32 per cent of the total households in 2002 and their holding of bovine livestock was only 0.6 per cent of the total bovine livestock. Their holding of small ruminants was also low at only 2.1 per cent.

<sup>4</sup> Field interviews in Rajasthan; other reports, including SA PPLPP documentation and the FES 2010 study on the commons.

**Table 2: Distribution of Livestock Holdings in India 2002–03**

Category	Landless < 0.002 ha	Marginal 0.002–1.0 ha	Small 1.0–2.0 ha	Medium 2.0–4.0 ha	Large > 4.0 ha	All
% households	31.9	47.1	11.2	6.2	3.4	100.0
<i>Distribution of livestock (%)</i>						
Bovine	0.6	51.3	21.2	15.0	11.9	100.0
Ovine	2.1	61.5	15.7	9.6	11.0	100.0
Poultry	4.4	62.7	17.4	6.8	8.6	100.0
Pigs	3.2	76.2	12.0	5.5	3.0	100.0
<i>Size of livestock holdings, no./100 households</i>						
Bovine	3	169	293	374	535	156
Ovine	4	84	90	99	203	64
Poultry	17	164	191	136	306	123
Pigs	0.3	5.3	3.5	2.9	2.9	3.3
<i>Source: NSS Report No. 493, Livestock Ownership across Operational Land Holding Classes in India 2002–03, Ministry of Statistics and Program Implementation, GOI.</i>						

Grazing and the extensive rearing<sup>5</sup> of livestock is the predominant feature of agro-pastoral livelihood systems across a vast majority of regions in India. The recent increase in demand for meat and a shift in livestock composition need to be viewed as a potential threat to the sustainability of dry-land farming. A critical input for farming in dry-land areas is farmyard manure from cattle. A declining holding of bovine livestock by small and marginal farmers (replacing them with small ruminants) will reduce the availability and application of manure, with detrimental effects on soil health and agricultural productivity.

Buffalo rearing for sale is emerging as an important livelihood activity. Common lands contribute to this livestock rearing activity in a significant way. The sale of small ruminants, primarily grazed on common lands contributes to direct income for households, and this is often used to purchase buffaloes or secure fodder for them<sup>6</sup>.

Policy action for the protection and regeneration of common lands requires a set of interventions, commencing first with the acknowledgement of the importance of the commons for the poor and developing greater public awareness and an information-base on the extent of available commons, based on studies and research. As a first step, it could be made mandatory for state governments to enumerate and report on the extent of common lands (for seven of the nine categories of land-use classification<sup>7</sup>) and those encroached or diverted for use other than by local communities. The formal approval of the *gram sabha* should be made a necessary requirement for diversion of any common lands in the vicinity of the village/hamlet (and not just for the village/hamlet's common lands)<sup>8</sup>.

### **Impact of Successful Programme Interventions on Common Land Development**

The NSSO (1999) estimate of the contribution of CPRs to household annual income was found to be very low at 3.2 per cent. The NSSO survey did not factor in the value of grazing on the commons and various other critical inputs to household needs and agriculture (such as wood for farm implements, material for

<sup>5</sup> Extensive rearing refers to a reliance on open grazing of livestock, as compared to stall feeding. Usually, both practices are combined, depending on the availability of fodder from the commons. Intensive rearing is almost exclusively dependent on stall feeding of bovines with agriculture residue, cultivated fodder and high value feeds.

<sup>6</sup> Field visit observations in central Rajasthan.

<sup>7</sup> Fallows other than current fallows, culturable wastelands, land under miscellaneous tree crops and groves, permanent pastures and other grazing lands, barren and uncultivable lands, area under non agriculture use and forests.

<sup>8</sup> Sometimes, the *panchayat* may collude with the encroachers. The Supreme Court has recently intervened in CIVIL APPEAL NO.1132 /2011 @ SLP(C) No.3109/2011, 28<sup>th</sup> Jan 2011 (Jaspal Singh and Others Vs. State of Punjab and Others).

housing, fencing and NTFP). In a recent study conducted by the Foundation for Ecological Security,<sup>9</sup> in seven states of the country, focused on common land development and regeneration interventions, the attribution of the contribution of common lands to household annual income, using all these variables came to 23 per cent, and this was significantly higher than the percentage derived from MGNREGA income<sup>10</sup>. The attribution of common lands to the income of the landless and the tribals was higher at 31 and 28 percent, respectively.

Project areas with successful interventions on common land development (investment, production of fodder and trees, and viable community institutions protecting these common lands), display lesser land and livestock holding inequity. In these regions endowed with relatively large tracts of common lands, not only is landlessness low, livestock holding percentages by the landless and marginal farmers (and, in fact, all other categories of land owning households) is much higher than state averages (for Rajasthan and Madhya Pradesh), and is evidence of the need to commit more land and resources to the development of CPRs and facilitate systems for community management and use of these lands.

In **Table 3**<sup>11</sup>, the average holding of large and small ruminants in the study villages, where FES had implemented common land development interventions, shows lesser inequity in livestock holding between the landless and the large landowning farmers, as compared to state averages that show a large variance.

**Table 3: Livestock Holding in Rajasthan 2007–08**  
(By different landowning farmer categories for the state and for project villages)

Category	Landless	Marginal	Small	Medium	Large
<b>RAJASTHAN</b>					
% households	15.4	41	15.9	13.7	14
<b>Distribution of livestock (%)</b>					
Cattle	0.7	39.9	14.7	16.6	28
Buffalo	0.4	36	18.9	22.8	21.9
Total bovine	0.6	38.1	16.6	19.5	25.2
Total ovine	1.2	46	11.2	12.8	28.9
<b>Size of livestock holdings (average no./household)</b>					
Cattle	0.06	1.31	1.25	1.63	2.68
Buffalo	0.03	1.01	1.36	1.91	1.79
Total bovine	0.09	2.31	2.61	3.54	4.47
Total ovine	0.23	3.36	2.11	2.79	6.15
<b>RAJASTHAN (STUDY VILLAGES)</b>					
% households	1.8	48.4	33.3	12.6	3.9
<b>Distribution of livestock (%)</b>					
Cattle	2.48	44.57	56.34	12.9	3.7
Buffalo	0.73	33.6	39.94	16.96	8.77
Total bovine	1.94	41.21	37.44	14.15	5.26
Goat	2.37	40.33	38.69	13.66	4.94
Sheep	0.04	45.33	41.22	11.75	1.66
Total ovine	1.54	42.04	39.65	13	3.77

<sup>9</sup> Draft Report of the results of the national research by the Foundation for Ecological Security: 'A Commons Story: In the Rain-shadow of the Green Revolution, FES 2010'.

<sup>10</sup> Draft report of the FES National Research 'A Commons Story: In the Rain Shadow of the Green Revolution, FES 2010'.

<sup>11</sup> Common Lands and Poor Livestock Keepers; SA PPLPP Study by FES, BAIF and GIDR, March 2009.

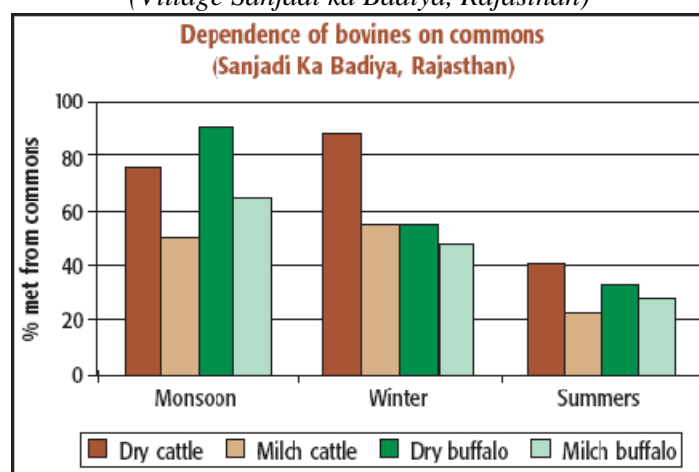


Category	Landless	Marginal	Small	Medium	Large
<b>Size of livestock holdings (average no./household)</b>					
Cattle	4.31	2.91	3.45	3.23	3.03
Buffalo	0.56	0.97	1.68	1.88	3.18
Total bovine	4.88	3.88	5.13	5.12	6.21
Goat	7.06	4.52	6.28	5.86	6.91
Sheep	0.06	2.82	3.72	2.8	1.29
Total ovine	7.13	7.32	10.01	1.29	8.21

Across these project areas, where common lands were protected and developed as a community resource for fodder, the impact was significant. In the project villages of central Rajasthan, the extent of CPR contribution to livestock rearing varied between 33 and 50 per cent of the fodder requirement for bovine livestock populations, with small ruminants almost entirely subsisting on open grazing on CPRs. Even where the common lands provided fodder for a short period of time in a year, this was critical in sustaining the livestock population.

There is evidence to show that dependence on common lands, by all categories of livestock, is critical for all months in a year, and this ranges from 20 to 60 per cent annually (see Graph 2<sup>12</sup>).

**Graph 2: Fodder Requirement for Bovines Met from Common Lands**  
(Village Sanjadi ka Badiya, Rajasthan)



### Recommendations for Programme Implementation and Policy Development

The livestock sector in India is under transition. There is diversification in agriculture to cash crops and a resultant reduction of crop residue suitable for fodder, reduced availability of common lands, closure of both common lands and forest lands for grazing, and increasing dependence on wage labour and migration. The composition of livestock is changing in favour of small ruminants and increasing commercialization. Such a scenario requires that priority be accorded to **programmes that enable the landless, poor and marginal farmers and those residing in remote areas with vulnerable livelihoods, to cope with this change**. The current exclusive focus on increasing milk and meat production as end goals will not contribute to promoting equity or the ecological and sustainable development objectives articulated as core themes in the Approach Paper for the 12<sup>th</sup> Five Year Plan.

**Enumerating the current status of common lands by state governments** and reporting any diversion or change in land-use should be made mandatory and a subject of public scrutiny. At the national level, the NSSO can be asked to carry out a survey every five years on the status of common lands, benefits derived from commons, and their contribution in sustaining and improving the livelihoods of the poor.

<sup>12</sup> Common Lands and Poor Livestock Keepers—SA PPLPP Study by FES, BAIF and GIDR (March 2009).

**Sustaining common lands already developed requires incentives and recognition.** Common lands once developed will require recurrent financial support for key activities such as re-seeding, repairs of soil and water conservation structures and protection. Investment cannot be a one-time function and needs to be augmented on a planned basis, at least once every five years. Recognizing community management of common lands with rewards, as is being done for other national programmes (for example, sanitation and village cleanliness<sup>13</sup>), will go a long way in recognizing the ecological, social and economic value of common lands.

**Formal recognition can be accorded to the village common lands development institution by recognizing it** as a sub-committee under the *panchayat*.

Investment in the **capacity building of common lands development institutions is required.** The recent initiative of the Panchayati Raj to have trained staff supporting the *panchayats* is a welcome development. However, additional focused training and exposure support to community leaders for common land development will go a long way in supporting and further strengthening both new and old community institutions.

At the district level, the **creation of a forum or a federation of common land development institutions** will provide a platform for advocacy. Some lead agencies can be identified in each state to support this process, with recognition by suitable state government orders.

**Specific funding commitments for common land development** from national sources such as NABARD and from international instruments such as Carbon Trading, REDD and any other relevant instrumentality under climate change mechanisms needs to be explored.

Given the significant push and the infrastructure created for delivering the Right to Work under the MGNREGA, development of common lands for fodder needs to be taken up as a priority. MGNREGA guidelines are sufficiently broad to include any employment generating work on both common and private lands. Efforts need to be made to earmark funds and monitor work related to common land development, as also provision of financial support for protecting these sites for a few years to facilitate regeneration.

**The creation of a National Fodder Mission** is proposed, which will bring in investment and priority for developing common lands for fodder, as also help in ensuring that adequate policy focus is backed with technical and funding resources that will facilitate development and protection of at least 10 per cent of common lands in a time-bound manner.

The contribution of common lands to rural livelihoods and the livestock sector of the country remain unnoticed. **Research, documentation, media and grassroots advocacy** efforts need to be promoted to ensure that the protection and development of common lands is a priority issue for the country.

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<sup>13</sup> Every year, the President of India awards the 'Nirmal Gram Puraskar' to a habitation, a revenue village, a block and a district, which have achieved full toilet coverage and usage, and other key elements of a clean village. Unfortunately, community managed common lands, which significantly improve ground water levels and ecology, and provide critical fodder and other benefits for the community, are not recognized or similarly rewarded.

## Section 1

### Commons, Livestock and Livelihoods: Findings from Desk Research

#### 1.1 Extent of common lands in India

**Definition of commons.** “Rural common property resources are broadly defined as resources to which all members of an identifiable community have inalienable use rights. In the Indian context CPRs include community pastures, community forests, government wastelands, common dumping and threshing grounds, watershed drainages, village ponds and rivers, etc. The first three resources are particularly important because of their large area and their contribution to people’s sustenance.”<sup>14</sup>

There is little official recognition of CPRs as a distinct and important category of land resources on which the poor secure different means of livelihood. Land, other than private agriculture, is owned by different state agencies of which the revenue and the forest departments own the largest chunk of available common lands. Railways, irrigation department, defence, and the public and private sector are other owners of common lands.

Estimates of common lands in India are based on the estimates of total land and land use. It is interesting to note that there are wide differences not only on the estimates of common lands but also on the estimates of total land area.

The NSSO report estimated 15 per cent of the land area in India as common lands (excluding private agriculture lands and areas under forests)<sup>15</sup>. The break-up of common lands is community pasture lands (3.45 per cent), village forests and woodlots (2.4 per cent), others (9.15 per cent), as per the NSSO report (**Appendix 1**).

Of the 306 million hectares of land in the country for which records are available, approximately 43 million hectares comprise land totally unfit for vegetation (either urban or under non-agriculture use such as roads, rivers, permanent snow, rocks and desert). The break-up of the remaining 263 m hectares of land is detailed below:<sup>16</sup>

Land-use	Million Hectares
Cultivated land	141
Forest land	70
Fallows/culturable wastes/pastures/groves	52
Total area of culturable lands	263

Considering the lack of clarity on what constitutes common lands, the 1999 NSSO survey on CPRs and livelihoods had to accept that the *de jure* land classification of commons is a limiting perspective of the true extent of commons and, hence, in the analysis of benefits arising from the commons, the NSSO survey took the status and availability of *de facto* commons, which not only included all types of land, other than the formally owned village common lands, but also open grazing on private agriculture lands in the post harvest season.

Estimates of CPRs (including forest areas) in India were put at 23.97 per cent of the total land area (see Table 1) by the Department of Land Resources, Ministry of Rural Development.

<sup>14</sup> Jodha N.S. Depletion of Common Property Resources in India—Micro-level Evidence. Quoted from the Committee on Land Reforms 2009 Report.

<sup>15</sup> NSSO Report 1999.

<sup>16</sup> Source: Table 14.1 Agricultural land by use in India 2007-08, Agriculture Statistics at a Glance 2010, Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India ([http://eands.dacnet.nic.in/latest\\_2006.htm](http://eands.dacnet.nic.in/latest_2006.htm))

**Table 1: Estimation of Common Pool Lands Using Land-use Classification Data (in Million Hectare)<sup>17</sup>**

Land-use type	2000-01
1. Total geographical area (ASI)	328.73
2. Owned land (AC)	159.44
3. Net sown area (ASI)	141.36
4. Current fallows (ASI)	14.78
5. Private land with common access (2 – 3 – 4)	3.30
6. Cultivable wastes (ASI)	13.63
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9. Land under miscellaneous tree crops (ASI)	3.44
10. Non-forest common pool resource (5 + 6 + 7 + 8 + 9)	41.33
11. As % of total area	12.57%
12. Protected forest (SFR)	23.84
13. Other forest (SFR)	13.64
14. Common pool resource including forests (10 + 12 + 13)	78.81
15. As % of total area	23.97

Seen in the above context and in the light of encroachment of commons, the extent of *de jure* CPRs in India is perhaps much less than even the 13 per cent estimate. The *de facto* availability of commons by the NSSO estimate is much higher and approximates the Department of Land Resources estimate of 24 per cent. The availability of *de facto* CPRs across different states and different agro-ecological regions is presented in **Appendix 3a and 3b**.

The official recognition of reduction in common lands was estimated at 0.38 per cent per annum (see Table 2). In terms of regions witnessing the steepest reduction in CPRs, it was the mid- and trans-Gangetic plains, Eastern Plateau and Hills and the Southern Plateau and Hills (see **Appendix 4**).

**Table 2: NSSO Estimates of CPRs in India (1999)**

Indicator (all-India figures)	NSSO Estimates
Share of CPRs in total geographical area	15%
Common property land resources per household (in ha)	0.31
Common property land resources per person (in ha)	0.06
Reduction in common pool resource land in the last five years (per 1000 ha)	(0.38% p.a.)

## 1.2 Encroachment of commons

The extent of common lands, based on land-use classification estimates, may not give the correct picture. Large parts of common lands have either been encroached or allocated by the government as a welfare measure in the past few decades.

As stated by the **Report of the Committee on State Agrarian Relations and Unfinished Task of Land Reform, Department of Land Resources, 2009**, CPRs are under pressure from the elite.

<sup>17</sup> Sources: Agricultural Statistics of India (ASI, 2005-6); Agricultural Census (AC, 2002); State of Forest Report (SFR, 2003). While latest data for 2007-08 from ASI and for 2005 from the Forest Survey of India is available, the latest data provided by the Agricultural Census is for 2000-01, hence, Table 1 shows 2000-01 figures.

*“CPRs are threatened due to encroachments by resource-rich farmers. Over-exploitation of CPRs definitely leads to poor upkeep of these resources. This also points to the fact that traditional institutions have either weakened or disappeared and have failed to enforce norms. Also, Revenue Dept control has never been interested in productivity, being too remote to manage and with lack of funds to develop it as their major role has been more of a record keeper rather than that of developer. The complex nature of land administration has only worked to the disadvantage of the rural poor. To further aggravate the situation is the inconsistencies in land records. Thus, there is visible lack of a long-term perspective towards land. In the present context of aggressive market forces, the absence of a clear land policy addressing the multiple uses of land is bound to jeopardize the interests of landless and the land poor.”<sup>18</sup>”*

*“The size of CPR land has been declining over the years. There has been a steady decrease in all kinds of common lands—pastures, village forests, ponds or even burial grounds. Decline in CPR area 55% in 1955 to 31% today in MP. (Pandey, 2008<sup>19</sup>). Permanent Pasture and other grazing land—25, 24,000 ha (1999–2000) have been declining from the previous years- (Ministry of Agriculture, GOI). Dependence on CPR land has been affected as a result of decline in size and deterioration of CPR land (Lele, 2008<sup>20</sup>). In a paper ‘Orissa 2020’, it is highlighted that CPR area as percentage of total geographic area of the state has declined from 20.39 percent in 1970–71 to 15.54 percent in 2000–01. This is quite alarming considering the context that 22 percent of the scheduled tribe population of the state is still dependent on CPRs to fulfil their requirements (Mearns and Sinha 1999).<sup>21</sup>”*

*“Diversion of land-use for other purposes has led to reduction in the size of CPRs. This has also been detrimental because ‘Pastoral communities may not be consulted/given recognition in decisions because they are ‘not there’, not ‘citizens’ ” Major reasons for such phenomena being (Lele, 2008)<sup>22</sup> primarily when meeting global needs. The Governments of Gujarat and Rajasthan with a view to bring large area of wastelands under productive utilization have come up with Bio-diesel policies, public-private partnerships so as to grant land on lease basis to big industrial houses and individual; corporate farmers for cultivation of horticulture and bio fuel trees. (2005)<sup>23</sup>. Most of the land that is leased for 15 years but is put to uses other than for what it is leased. 90 % of the time this is a land grabbing strategy. Instead of horticulture and biofuels, the land is put to other uses. Iron ore and granite are very important resources, mostly located in public lands so there has been wanton utilisation of these industrial resources. .”*

*“The Government of Gujarat has allotted and regularized the CPR Land with dual objectives of supporting the socially and economically backward population in the villages there by improving their income earning capacity and of providing land for the housing purpose. It distributed land acquired under Land Ceiling Act twice, in 1960 and 1976. By 1985, 22277 holdings were allocated to landless families with average of 2.5 ha. per family. The fertility of most of the land was below average and the allottees had neither skill nor monetary resources to improve the productivity. There existed a possibility of conflict as the poorest section depends upon CPR land for fodder and fuel wood and other minor forest produce (in case of forest). When the CPR land is distributed to a specific group of population, neither they nor the rest of the CPR land-dependent population benefit. “Till March 2008, the government has distributed 7568.94 ha. of culturable waste to 6723 beneficiaries, that amount to be around 38 per cent of the total culturable waste. Besides, many of the lands have also been distributed to the Industrial sector totally unmindful of the people dependent upon them.”*

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<sup>18</sup> Report of the Committee on State Agrarian Relations and Unfinished Task of Land Reforms; Department of Land Resources; 2009 (Section 3.2).

<sup>19</sup> Amitabh Pandey, State Level Consultations, August 2008—Report of the Committee on State Agrarian Relations and Unfinished Task of Land Reforms; Department of Land Resources; 2009 (Section 6.9.2).

<sup>20</sup> Sharachchandra Lele, Status paper on Common Property Resources (CPR) in Karnataka, CISED, Bangalore, 2008—Report of the Committee on State Agrarian Relations and Unfinished Task of Land Reforms; Department of Land Resources; 2009 (Section 6.9.2).

<sup>21</sup> Robin Mearns and Sourabh Sinha. “*Social Exclusion and Land Administration in Orissa, India*”. World Bank Policy Research Paper 2124, May 1999—Report of the Committee on State Agrarian Relations and Unfinished Task of Land Reforms; Department of Land Resources; 2009 (Section 6.9.2).

<sup>22</sup> Sharachchandra Lele, Status paper on Common Property Resources (CPR) in Karnataka, CISED, Bangalore, 2008—Report of the Committee on State Agrarian Relations and Unfinished Task of Land Reforms; Department of Land Resources; 2009 (Section 6.10.1).

<sup>23</sup> Government of Gujarat. Revenue Department, Various Resolutions—Report of the Committee on State Agrarian Relations and Unfinished Task of Land Reforms; Department of Land Resources; 2009 (Section 6.10.3).

### 1.3 Global livestock sector perspective—the Livestock Revolution debate

Over 880 million of the 1.1 billion extreme poor, defined as those who have to make a living on less than \$1 a day, live in rural areas (World Bank, 2008). Of these, 555 million are estimated to fully or partially depend on livestock for their livelihoods (ILRI, 2002). Equitable and inclusive development of the livestock sector could, therefore, substantially contribute to attaining the UN Millennium Development Goal 1 of ‘eradicating extreme poverty and hunger’<sup>24</sup>.

In developing countries, a “Livestock Revolution”<sup>25</sup> is predicted on account of growing urbanization and a change in food consumption patterns (in favour of meat-based food) in the coming decades.

There are contrary viewpoints on this possible shift. One viewpoint is that about half a billion of the world’s ‘extreme’ poor, who depend on livestock for part of their livelihoods, may potentially benefit from the expanding market for Animal Sources of Food (ASF) (Brown, 2003; Catley, 2008; Delgado, 2003; ILRI, 2008), and that an unregulated growth of the livestock sector may generate significant negative externalities, both on the environment and public health (Barrett, 2001; FAO, 2006a; World Bank, 2005; World Bank, 2009a).

Another view maintains that the assertion that “urbanization, and income growth in developing countries are fuelling a massive global increase in demand for food of animal origin” appears not to hold true for the majority of developing countries, the main driver behind growing demand for ASF in most countries being population growth and not a change in food consumption habits. Hence, it is argued that “Livestock sector policies which (exclusively) build on a presumed existence of a fast growing demand for animal source food are destined not to go far in supporting growth and poverty reduction in the majority of developing countries. In fact, the dominance of the paradigm of demand-led livestock sector development stands in the way of identifying where the potential exists for supply-driven livestock sector growth to act as an important stimulus for rural development and poverty reduction. The latter often still is the case in agriculture-based economies, where poverty rates are the highest”<sup>26</sup>.

### 1.4 Livestock in India: A brief overview of main trends

In terms of the spread of livestock in India, 70% of the dry-land area accounts for 60% of India’s livestock. Livestock is complimentary to agriculture. It is an efficient use of agriculture residues (water, straw, leftovers from other crops), agriculture waste (weeds and grass, oil cakes) and converting these into manure for improving soil fertility, as well as for productively employing surplus labour. Non-quantifiable benefits of livestock holding in rural communities are also important such as social, religious and cultural aspects. Its use is more than just for milk and meat. In addition to providing draught power, manure, hides and wool, about 15 million bullock carts fulfil two-thirds of India’s transportation needs and provide employment to 20 million people (Ramanajam, 2003)<sup>27</sup>.

In the Himalayan region, livestock grazing is able to make use of grasslands in the summer and the bushes and forest lands in the winter, to enhance the total value of biomass and food production (when grazing intensity does not threaten bio diversity and soils)<sup>28</sup>. In the arid desert landscape, free grazing livestock, including camels, are left to graze for as long as a year only to come back once a year to the owner<sup>29</sup>. Livestock rearing is therefore of vital importance as exclusive pastoral livelihoods, agro-pastoral systems and mixed farming-livestock systems. Its evolution, over a long period of time, has resulted in development

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<sup>24</sup> Supporting Livestock Sector for Poverty reduction, ILRI Paper.

[http://www.fao.org/ag/againfo/programmes/en/pplpi/docarc/rep-0901\\_policyprojects.pdf](http://www.fao.org/ag/againfo/programmes/en/pplpi/docarc/rep-0901_policyprojects.pdf)

<sup>25</sup> Delgado, C., Rosegrant, M., Steinfeld, H., Ehui, S., and Courbois, C. (1999) “Livestock to 2020—The Next Food Revolution”. Food, Agriculture and the Environment Discussion Paper 28. IFPRI/FAO/ILRI.

<sup>26</sup> Pro Poor Livestock Research ILRI Paper 2006. [http://www.fao.org/ag/againfo/programmes/en/pplpi/docarc/rep-0905\\_livestockrevolution.pdf](http://www.fao.org/ag/againfo/programmes/en/pplpi/docarc/rep-0905_livestockrevolution.pdf)

<sup>27</sup> As quoted by Indranil Biswas and Bikramjit Sinha—Livestock in Mixed Farming; India Science and Technology: 2008

<sup>28</sup> Vasant K. Saberwal, Pastoral Politics, 1999.

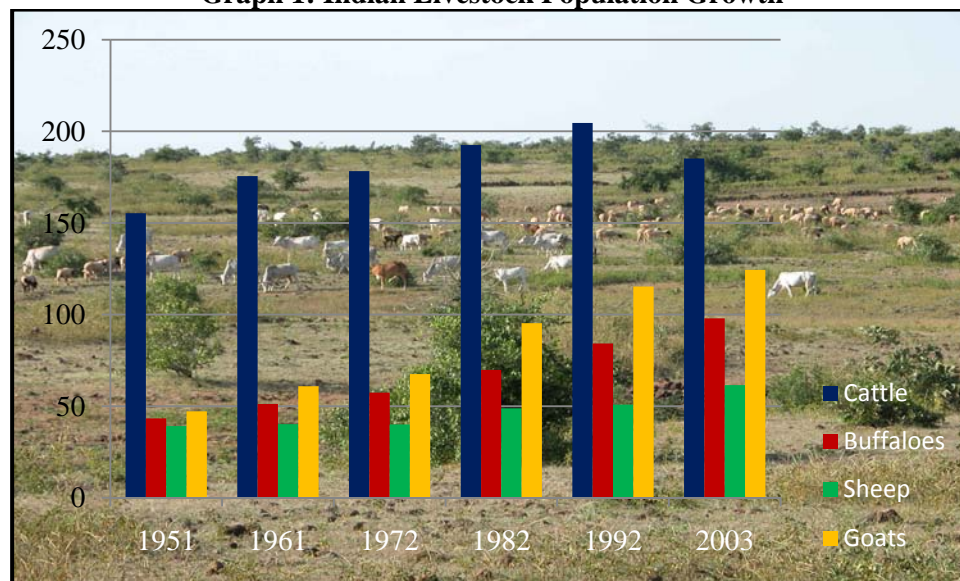
<sup>29</sup> Discussion with SA PPLPP and FES teams on livestock.

of breeds and feeding practices, transhumance pastoral economy as well as household-level livestock keeping.

The livestock scenario in India has undergone a major change since the Green Revolution of the mid-1970s. The most important purpose of cattle rearing till the advent of the Green Revolution was not milk production but the production of bullocks and manure that was critical for farming. Large cattle herds were common and their fodder requirement was met from open grazing as well as from the crops grown (largely those with high residue fodder value). The rearing of small ruminants was segmented by caste and not everyone reared them. Hence the ratio of large vs. small livestock tilted in favour of bovines and not small ruminants as is the case now.

As reflected in **Graph 1**, at the national level, the increasing trend of cattle population was reversed from the 1990s. Livestock holding of indigenous cattle and bullocks has seen a decline. Goat and buffalo populations are rising at the fastest pace and that of sheep are stagnating.

**Graph 1: Indian Livestock Population Growth**



Bullocks are being replaced by tractors and engines for ploughing, extracting ground water and transport. Whereas the gross area under cultivation increased on account of double and triple cropping from surface and ground water irrigation, a change in the cropping pattern to cash crops impacted on the net fodder available from crop residue, in the semi-arid and arid regions of the country. Closure of forest areas for grazing also contributed to the shrinking of fodder availability.

Whereas the total livestock population has increased over the past decades, the rate of increase is less than the human population increase in India. This has resulted in an **overall decrease in livestock holding per 100 households** (as recorded by annual livestock surveys), **across all categories of households except marginal farmers.**

**To summarize the direction of changes occurring in livestock composition and ownership:**

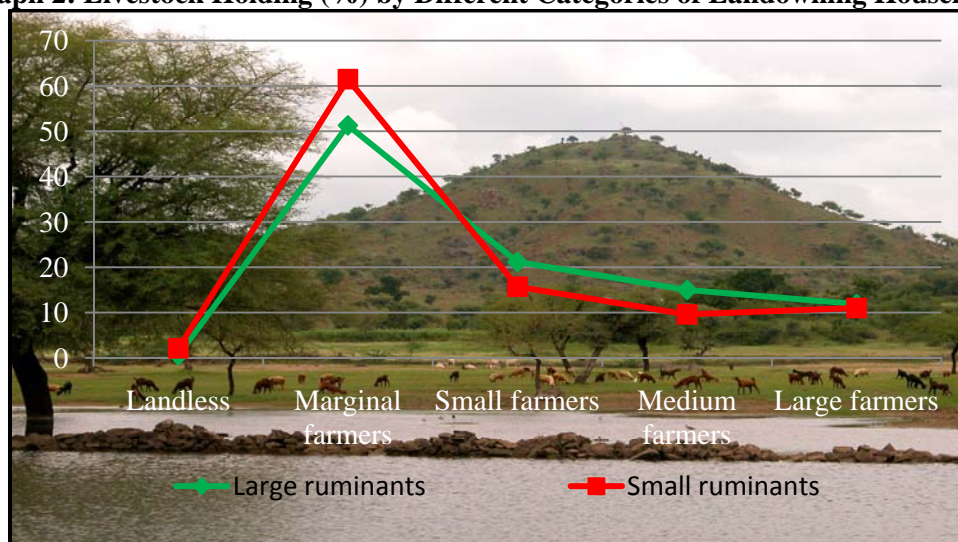
- A declining trend of cattle (20%) since 1992. An increasing trend of buffaloes, sheep, goats, poultry
- The increase in small livestock has been much more than the increase in large ruminants. In 2003, there existed 185 million cattle and 185 million goat and sheep<sup>30</sup>.
- Of the 185 million cattle in 2002–03, there were 85 million non-descript and 25 million cross-bred females and the remaining 77 million as males. The buffalo population of approximately 100 million

<sup>30</sup> Livestock census 2007 data that has just been released highlights a much higher growth rate of goats and sheep, and these now outnumber the cattle population.

is approaching the cattle and cross-bred population. In-milk buffalo holding has increased for all categories of land holding farmers, except the landless (for whom it has declined)<sup>31</sup>.

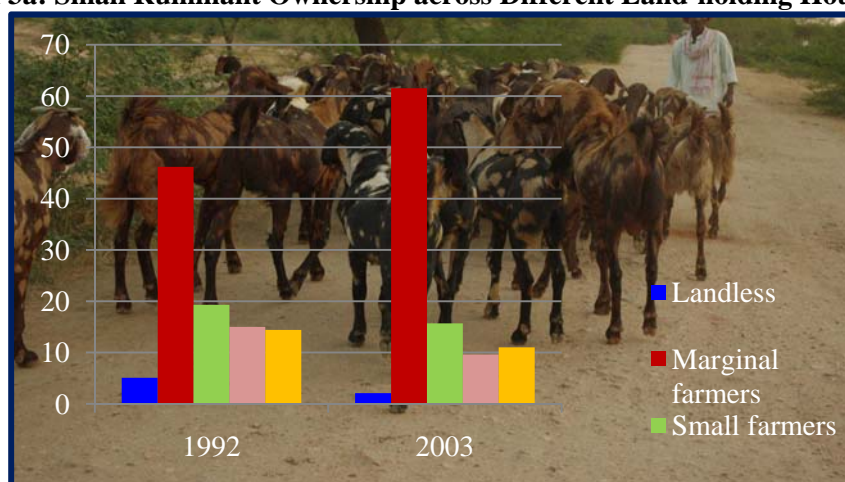
- The livestock holding pattern shows that the landless held fewer large ruminants in 2003 than they did ten years earlier. As a group, 79 per cent households comprising landless and marginal farmers own 52 per cent cattle/buffaloes, 64 per cent goats/sheep and 67 per cent poultry. Ten per cent medium and large farmers own 27 per cent large ruminants, 21 per cent goats/sheep and 15 per cent poultry. See Graph 2.

**Graph 2: Livestock Holding (%) by Different Categories of Landowning Households**



**First**, there is a clear trend that the ownership of goats and sheep by marginal farmers is the highest among all categories of livestock owned (at more than 60 per cent). Other categories of landowners hold more of large ruminants than goats and sheep, as per the latest available livestock data (2003 Census). **Second**, the marginal landowning farmers are the only category that witnessed an increase of all types of livestock over 1992–2003. All other categories of landowning farmers as well as the landless, witnessed a decline in livestock holding over the period 1992–2003. This could be on account of small and medium farmers falling into the marginal land-holding category over this period. This also highlights the challenge for supporting this section of livestock rearers as a priority in the years to come. **Third**, the rate of increase of small ruminant ownership by marginal farmers is higher than the ownership of large ruminants. See **Graphs 3a and 3b**.

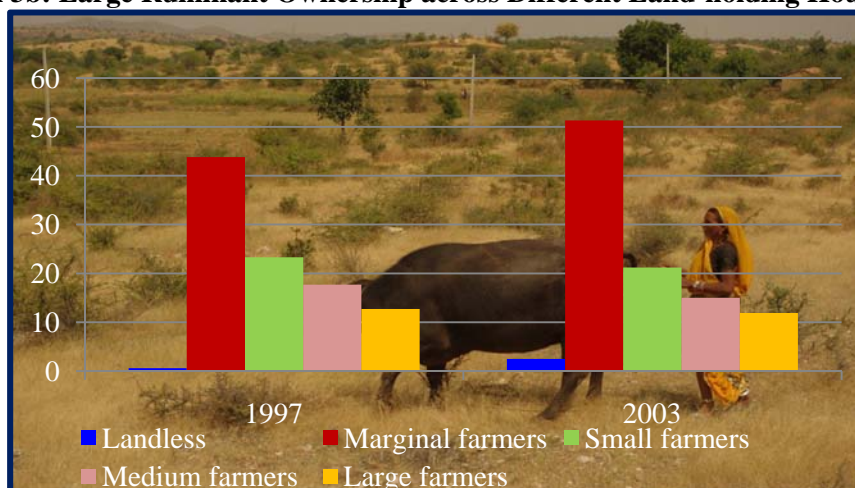
**Graph 3a: Small Ruminant Ownership across Different Land-holding Households**



<sup>31</sup> NSSO 59<sup>th</sup> Round report (2003).



**Graph 3b: Large Ruminant Ownership across Different Land-holding Households**



Similar national trends are not reflected in all states because different states are at different stages of development and consumption habits differ. Trends in livestock holding across India present the following patterns:

- The dry-land states (Andhra Pradesh, Rajasthan and Karnataka), West Bengal and predominantly tribal-populated states (Jharkhand and Chhattisgarh): **marginal and small farmers keep more goat/sheep than large ruminants.**
- For some sub-humid states (parts of Madhya Pradesh, Uttar Pradesh, Orissa, Bihar, Nagaland, Mizoram): **cattle outnumber goat/sheep.**
- Marginal landholding **farmers in most Himalayan states have more goat/sheep than cattle.**
- Punjab and Haryana have more buffaloes and cross bred cows than indigenous cattle, goats and sheep.
- **West Bengal** has the highest number of cattle and goats.
- The majority of the indigenous cattle and bullock holding is now in eastern India, with predominantly subsistence farming.

### 1.5 Criticality of CPRs to rural livelihoods

The single largest recent survey of estimates of benefits of CPRs to livelihoods was the NSSO report of 1999. Based on a sample set of households drawn from both rural and urban areas, this national-level survey mapped the following aggregate benefits from common lands (see Table 3).

**Table 3: NSSO Estimate of Benefits from the Commons**

Item	Estimate
1. Households reporting collection of any material from CPRs	48%
2. Average value of annual collections per household	Rs 693
3. Ratio of average value of collection to average value of consumption expenditure	3.02%
4. Households reporting grazing of livestock on CPRs	20%
5. Households reporting use of common water resources for:	
(i) Irrigation	23%
(ii) Livestock rearing	30%
(iii) Household enterprises	2.8%

The NSSO survey **estimate of the contribution of CPRs for households is low** (for grazing, fuel-wood collection and other products). This could be on account of the scale of the NSSO survey with both rural and urban villages, as compared to other studies that have been done in villages with a large proportion of common lands. **The NSSO estimate also did not factor in the value of grazing on commons, as an**

**imputed value for income from CPRs**; hence, the overall contribution of CPRs to annual consumption expenditure was only 3.2%. Fuel-wood is the single largest contributor of products from CPRs to household income, for all categories of households (see **Appendix 5**). Further, a relatively higher proportion of contribution of CPRs to irrigation is reported.

The contribution of CPRs from various other studies highlights a much higher value<sup>32</sup>.

The livestock sector contributes nearly 25 per cent of the agriculture contribution to the GDP of India<sup>33</sup>. The increase signifies the importance of the economic value of livestock production in the national economy and for the livelihoods of farmers. The increase is both a result of increasing livestock numbers as well as a change in the weightage given to non-cereal agriculture production (vegetables and livestock) in agriculture income estimates since 2000–01. “Livestock provides gainful employment all-round the year to over 16 million people, of which 70% are women. Milk production accounts for 5.86% of the GDP while the total contribution from Animal Husbandry is 9.33%.”<sup>34</sup> An annual growth of 4.11 per cent was witnessed during the period 1990–2000. Per capita milk availability is currently 241 gm/day. Only 34 breeds of cattle and 12 breeds of buffalo are registered with the NBAGR<sup>35</sup>. In livestock rearing, women do the major share of labour at 9.8 per cent vs. 2.2 per cent by men. From the total labour engaged in livestock rearing, the contribution of women increased from 65 per cent in 1983 to 71 per cent in 2000 whereas their contribution to crop production remained unchanged at 37 per cent<sup>36</sup>.

**Declining trend of growth in milk production.** The annual growth of milk that had peaked to 5.2 per cent during 1980–90 came down to 4 per cent per annum during 1990–2003 and to less than 2 per cent per annum for the period 2000–09. Estimates of milk production are derived from the estimates of milch livestock and average production values. The drastic reduction in indigenous cattle numbers, even after compensating with the increase in buffalo and cross-bred cattle populations, has, therefore, not been able to sustain the high growth of milk production.

There is a **declining trend in employment in the livestock sector**: from 8.5 per cent in 1983 to 5.3 per cent in 2000. For 11.44 million people, livestock rearing is their principal occupation and for 11.01 million, it is their secondary occupation<sup>37</sup>. Those with more than 4 ha of land have witnessed an increase in the average size of animal holding from 274 cattle in 1991–92 to 433 cattle in 2002–03 (for every 100 households)<sup>38</sup>. There is evidence of only a marginal increase in small ruminant holding (from 81 to 84 animals per 100 households) by marginal farmer households.

In some instances, **ownership of draught animals is essential for some sharecroppers to secure and maintain land tenancy**. In other places, complex sharing arrangements are entered into between landless and marginal farmers among themselves as well as with the medium category of farmers for supporting draught power and indigenous cattle and goat and sheep rearing on a mutually beneficial basis.

Some studies have shown the **positive impact on household livelihoods of dairying with improved breeds**. An ILRI research in Andhra Pradesh shows that feeding programmes (purchased green fodder and high value cattle feed) can increase returns on dairy labour by up to 145 per cent, thereby surpassing the regional wage level. For the household, this means that any family member staying on the dairy farm would ‘earn’ a higher wage than family members working off-farm as unskilled labour. It also raises the question as to why, with such an attractive outcome, so few farmers are adopting better animal feeding practices. The study concludes that “two main factors for farmers’ low adoption are the higher risk of failure (of investment

<sup>32</sup> The Foundation for Ecological Security research on commons attributes outputs from commons to be as high as 23 per cent of annual household incomes (for fodder, fuel-wood, water, food, non-timber forest produce, farm implements, fencing and manure).

<sup>33</sup> FAO estimates peg the contribution of livestock to 40 per cent of agriculture production.

<sup>34</sup> Livestock Development for Sustainable Livelihood of Small Farmers, *N.G. Hegde*, pp 50–63. Souvenir of the 39th Annual General Meeting and 48th National Symposium on Energising Rural India: A Challenge to Livestock Industry. Compound Livestock Feed Manufacturers Association of India (CLFMA), Manesar, Haryana. August 26, 2006.

<sup>35</sup> <http://www.nbagr.res.in/registeredbreed.html>

<sup>36</sup> Jabir Ali, quoting the NSSO employment survey, in “Livestock sector development and implications for rural poverty alleviation in India”; IIM Lucknow.

<sup>37</sup> Draft National Livestock Policy 2008.

<sup>38</sup> V. Padmakumar CALPI; Livestock-Livelihoods-Environment.

in buffaloes in case of illness or of the milch cattle going dry as well as the higher [daily] requirements of working capital”<sup>39</sup>.

**Livestock development for small herders in the flood plains with less intensive agriculture**, under-developed irrigation facilities, high landless population and little grazing land: A study found that ownership of livestock as a proportion of total households owning any specific type of livestock is not high (less than 45 per cent reported for four villages), with only 1 bovine and 1.6 small ruminants on an average per household<sup>40</sup>. Lack of common grazing lands is a key factor for lower livestock holding in the flood plains of India.

**Common lands have supported agro-pastoral livelihoods in the semi-arid and arid regions of India.** Agriculture of these regions was dependent on livestock rearing for manure and bullock power. Given the unstable and low agricultural productivity in the arid and semi-arid regions of India, it is only on account of the presence of common lands that landless and marginal farmers can afford to keep livestock. The example of Kutch, where the entire rural economy of more than 50 villages is dependent exclusively on grazing on common land, is evidence of the importance of these lands to livestock rearing. All other landholding categories of farmers and all species of livestock (indigenous cattle, buffaloes, cross-bred cows, goat and sheep) also benefit from the grazing potential of common lands.

National-level trends of livestock holding witnessed a significant change in terms of who owns what animal. **Livestock held by landless and marginal farmers shows a marked decline in all types of livestock.** There is a decline in the goat and sheep holding for the small, medium and large landowners as well. Poultry is the only segment in which marginal farmers have an increased holding. In terms of the size of livestock holding for different categories of landholding farming households, the decline in the bovine livestock population has affected landless and marginal farmers the most. Landless populations again have suffered the most significant decline in goat and sheep holding. Small livestock holding (goats and sheep) by marginal farming households went up marginally during this period. Please see Table 4a and 4b.

**Table 4a: Distribution of Livestock Holdings in India 1991–92**

Category	Landless < 0.002 ha	Marginal 0.002–1.0 ha	Small 1.0–2.0 ha	Medium 2.0–4.0 ha	Large > 4.0 ha	All
<b>% households</b>	21.8	48.3	14.2	9.7	6.0	100.0
<i>Distribution of livestock (%)</i>						
<b>Bovine</b>	2.5	43.8	23.3	17.7	12.7	100.0
<b>Ovine</b>	5.1	46.2	19.3	15.0	14.4	100.0
<b>Poultry</b>	6.4	54.9	19.0	14.4	5.3	100.0
<b>Pigs</b>	7.7	49.9	20.4	13.9	8.1	100.0
<i>Size of livestock holdings, no./100 households</i>						
<b>Bovine</b>	23	180	324	361	418	198
<b>Ovine</b>	20	81	115	131	203	85
<b>Poultry</b>	49	190	223	247	147	166
<b>Pigs</b>	2	4	6	6	5	4
<i>Source: NSS Report No. 408, Livestock and Agricultural Implements in Household Operational Holdings 1991–92, Ministry of Statistics and Program Implementation, GOI.</i>						

<sup>39</sup> ILRI South Asia Study (undated) An Innovation Systems Study on Fodder Innovations on Enhancing Livelihoods of Poor Livestock Keepers in the Krishna and Guntur districts of Andhra Pradesh.

<sup>40</sup> ILRI Study 2006 Crop-livestock interactions in the Indo Gangetic plains of Bihar.

**Table 4b: Distribution of Livestock Holdings in India 2002–03**

Category	Landless < 0.002 ha	Marginal 0.002–1.0 ha	Small 1.0–2.0 ha	Medium 2.0–4.0 ha	Large > 4.0 ha	All
<b>% households</b>	31.9	47.1	11.2	6.2	3.4	100.0
<i>Distribution of livestock (%)</i>						
<b>Bovine</b>	0.6	51.3	21.2	15.0	11.9	100.0
<b>Ovine</b>	2.1	61.5	15.7	9.6	11.0	100.0
<b>Poultry</b>	4.4	62.7	17.4	6.8	8.6	100.0
<b>Pigs</b>	3.2	76.2	12.0	5.5	3.0	100.0
<i>Size of livestock holdings, no./100 households</i>						
<b>Bovine</b>	3	169	293	374	535	156
<b>Ovine</b>	4	84	90	99	203	64
<b>Poultry</b>	17	164	191	136	306	123
<b>Pigs</b>	0.3	5.3	3.5	2.9	2.9	3.3
<i>Source: NSS Report No. 493, Livestock Ownership Across Operational Land Holding Classes in India 2002–03, Ministry of Statistics and Program Implementation, GOI.</i>						

### 1.6 Fodder situation and contribution from common lands and forests

There are no reliable fodder estimates specifically for livestock rearing in India. A fodder market does not exist at the national level. There are areas of surplus and deficit fodder. Agriculture crop residues constitute the bulk of fodder supply in the irrigated Green Revolution Indo-Gangetic belt. In the semi-arid areas, crop residues and grazing on common lands and forests is practised.

Estimates of fodder availability highlight massive gaps. The price of fodder per kilogram has gone up substantially. Green fodder and feed costs are very high. The June 2010 issue of *Down to Earth* reports:

*The main reason behind the rise in milk prices is the increasingly higher cost of fodder. “Inflation has been high in the last few years, the cost of fodder too has increased. Yet milk prices remained where they were. Only in the last two to three years, have the prices shot up,” said B.M. Vyas, Managing Director of the Gujarat Co-operative Milk Marketing Federation.*

*The drought in north and northwest India in 2009 made matters worse. A low agricultural yield led to low fodder yield, and prices of fodder hit the roof. About 70 per cent of the cost of milk production goes into fodder; this includes dry wheat, millet or paddy stalks and green fodder. Then there are concentrates like de-oiled cakes and molasses, among others. The remaining 30 per cent are medical and labour costs.*

*“There are reports that some milk producers find it more profitable to sell their animals for meat instead of continuing with milk production,” said Dr. Amrita Patel in her address to the Dairy Industry Conference held in Bengaluru in February 2011. ‘This is because there is a 4–6 per cent incentive on the export of buffalo meat.’<sup>41</sup>*

*As per the **National Forestry Action Plan**, a large number of India’s livestock population graze in forests, causing serious damage to regeneration and productivity.*

*The use of forests beyond its carrying capacity and encroachments are the main cause of continuous degradation of forests. Out of 445 million cattle in the country, nearly 270 million graze in forest areas. At present, 70% of the forests have no natural regeneration and 55% of them are prone to fires. It is generally agreed that nearly 30% of the fodder requirement of the country comes from forest areas. Therefore, there is removal to the extent of 145 million tonnes of dry fodder and 178*

<sup>41</sup> High Cost of Fodder leads to Milk Price Hike; *Down to Earth* June 2010. <http://www.downtoearth.org.in/node/793>

*million tonnes of green fodder annually from the forest areas of the country. In certain cases lopping of trees during periods of scarcity is a common practice and this has been causing considerable depletion of forest resources.*<sup>42</sup>

The **Forest Survey of India (FSI, 1996)** estimated the requirements of green and dry fodder at 593 and 482 million tonnes, respectively, and that these requirements would increase to 699 and 552 million tonnes in 2001 and 817 and 615 million tonnes, respectively, in 2006. As per the **Livestock Census 2002–03**, the total fodder and feed requirement was 690 million tonnes (green, dry and feed) and a gap of 40 per cent in dry fodder, 36% in green fodder and 57% in concentrates existed.

According to **BAIF**, current fodder production is in the range of 880 million tonnes of dry fodder (including greens) that can only meet 35–40 per cent of the demand. Most of this dry fodder is agriculture by-produce and grasses collected from common lands. Hardly 3 to 4 per cent of agriculture land is under exclusive fodder production. Large herds of unproductive livestock are a major reason for the shortage of fodder. Eighty to eighty-five per cent cattle (*desi*/nondescript breeds) do not contribute to milk production in a significant way, creating fodder scarcity.

Over 60 per cent of community pasture lands in Rajasthan are unproductive due to excessive grazing and heavy soil erosion (NG Hegde, BAIF, CLFMA Conference, 2006). An investment of Rs 10,000 to 14,000 per ha after three years, resulted in grass worth Rs 4,000 to 5,000/ha from these developed common lands.

As per an **FES study in Rajasthan and Madhya Pradesh**, the monetary values of biomass on regenerated common lands range from Rs 18,600/ha to 460,000/ha across villages. In comparison, the monetary values of biomass per hectare on non-regenerated/unprotected common lands have ranged from Rs 3,900/ha to 216,000/ha. In Rajasthan, on an average, a household derives fodder worth around Rs 10,700/ ha per annum from common lands. The same value in Madhya Pradesh was observed at around Rs 7,600/ ha per household per annum<sup>43</sup>. This justifies the viability of investing in the development of common lands, even from the minimalist input-output criteria.

### **1.7 Livestock rearing and the policy environment**

The National Agricultural Policy (NAP 2000) targeted a 4 per cent annual growth in the agricultural sector by 2020, and emphasized livestock as an important driver of this growth. The policy statement focused on the need to: (i) evolve a livestock breeding policy to increase livestock production and enhance the use of draught animals as a source of energy, (ii) generate and disseminate livestock-related technologies to improve animal productivity, (iii) improve marketing, processing and transportation facilities for value addition, (iv) manage grazing lands and rejuvenate pastures, (v) establish disease-free zones and (vi) involve co-operatives and the private sector in development efforts<sup>44</sup>.

Recognizing the priority to create ‘enough non-farm opportunities to absorb the labour surplus in rural areas, and equipping those in agriculture to access such opportunities’, the goals for the 11<sup>th</sup> Five Year Plan for the livestock sector, included attaining an overall growth rate between 6–7 per cent per annum for the sector as a whole, with milk achieving a growth of 5 per cent, and meat and poultry achieving a growth of 10 per cent per annum. Whereas the plan stressed on the need for equitable growth benefiting small and marginal farmers and landless labourers, it also highlighted the constraints faced, largely related to the lack of credit and health service facilities at the doorsteps of producers<sup>45</sup>.

Whereas the NAP recognized the critical link between the revival of common lands and livestock rearing, particularly by small holders, this was not clearly enumerated as a constraint to livestock rearing in the 11<sup>th</sup> Plan. Further, although a draft National Livestock Policy has been developed, this is yet to be finalized.

<sup>42</sup> <http://envfor.nic.in/nfap/pressure-forest-1.html#grazing>

<sup>43</sup> Common Land and Poor Livestock Keepers—SA PPLPP Best Practice documentation; March 2009

<sup>44</sup> Small Livestock Production in India; ICAR-ILRI International Workshop Proceedings 2006

[http://www.ilri.cgiar.org/Infoserv/Webpub/fulldocs/SmallholderLivestockPro/SmallholderSMPinIndia\\_Final.pdf](http://www.ilri.cgiar.org/Infoserv/Webpub/fulldocs/SmallholderLivestockPro/SmallholderSMPinIndia_Final.pdf)

<sup>45</sup> Planning Commission, Government of India, 11<sup>th</sup> Five Year Plan document (Section on Agriculture, Pages 1 and 24–25).

As preparations are underway for the development of the 12<sup>th</sup> Five Year Plan, and in view of the critical dependence on common lands for livestock rearing, particularly by small holders, it is imperative that the linkages between common lands and livestock rearing are recognized, and translated into programmes that will facilitate the regeneration of common lands for both livestock rearing and related livelihood opportunities.

## Section 2

### Review of Common Land Development Projects and SA PPLPP Good Practice Documentation

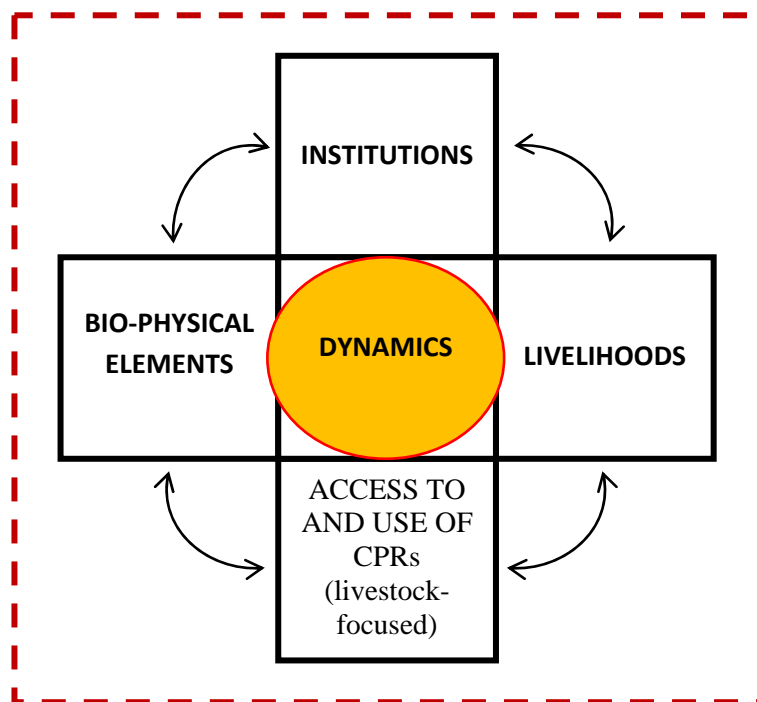
Visits were made to SA PPLPP Good Practice sites, implemented by FES and BAIF, in Rajasthan. Parallel visits to some other FES projects in Orissa and Andhra Pradesh were also undertaken, in addition to meetings with experts and practitioners in Ahmedabad and Delhi.

This section documents the observations and people's perceptions of projects, in which common lands have been developed and managed successfully, to supplement and cross-check the analysis in the previous section. The findings in this section are indicative of the potential for the development of common lands for fodder and the management options practised. Much of this has been documented in detail by different organizations and the SA PPLPP Good Practice documentation—for bio-physical changes, impact on livelihoods, institutional systems for management, and issues related to equity and access to CPRs. The purpose of this study is not to validate this large body of work but to assess the situation on the ground, based on community perceptions and practitioners' views and insights.

This section when read with the previous section on desk research seeks to provide an overall picture of key issues and the criticality of CPRs for livestock-based livelihoods of the poorest sections of the rural community.

#### 2.1 CPRs and the Livestock-Livelihoods framework

The SA PPLPP documentation of CPRs and the livestock-livelihoods interface explores the dynamics of project interventions in terms of four outcomes (livelihoods, institutions, access to and use of CPRs by livestock rearing communities, and bio physical changes over time in CPRs). It has been presented in a framework for analysis, reproduced below<sup>46</sup>.



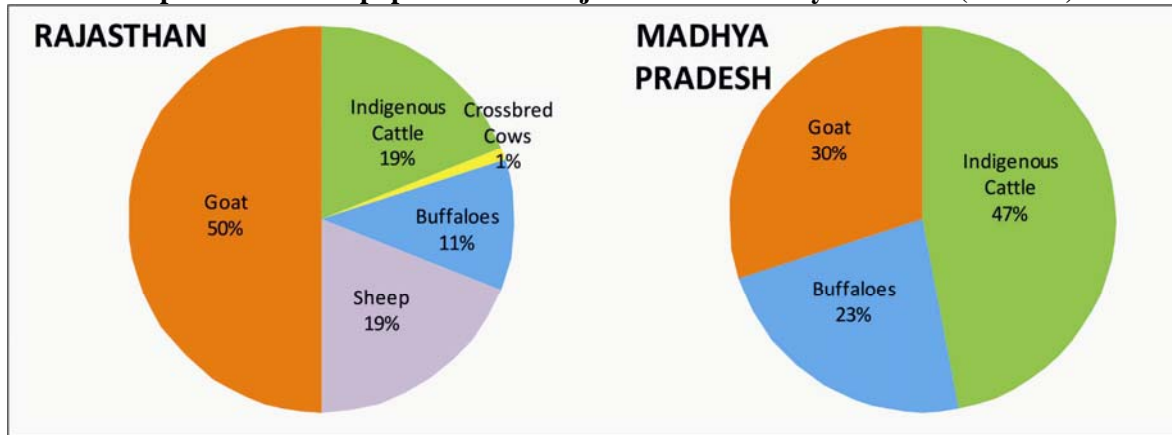
#### 2.2 Livestock in different local contexts

It is interesting to note that whereas the cattle population (cows and bullocks) is going down for the country as a whole and the overall buffalo population is increasing, the situation varies across different regions. Areas with successful CPR development projects broadly follow this trend but with greater resilience by marginal farmers in sometimes expanding their cattle and bullock holding.

<sup>46</sup> SA PPLPP Learning Event 2: “Common Property Resources –Livestock”; Proceedings 15–17 July 2008.

The following pattern of livestock in Rajasthan and Madhya Pradesh emerged from the FES research. On an average, in the study villages of Rajasthan, bovines constitute 30 per cent of the total livestock and small ruminants comprise the remaining 70 per cent. The livestock composition in the Madhya Pradesh study villages shows a different structural composition, one of the most significant differences being the relatively higher percentage of indigenous cattle and buffalo.<sup>47</sup> This is presented in **Graph 4**.

**Graph 4: Livestock populations in Rajasthan and Madhya Pradesh (2007-08)**



During field visits in the Bhilwara and Bundi districts of central Rajasthan, it was observed that the buffalo population was fast catching up with the indigenous cattle population or had already surpassed it in some of the villages visited.

In the sub-humid eastern Indian state of Orissa, where the forest cover is extensive and the status of agriculture is still primitive, the composition of livestock species as well as the trend in livestock holding is in contrast to national trends. Here, bullocks and indigenous cattle show an increasing trend.

In Maharashtra and some southern Indian states, whereas the goat population has increased the most in the past few decades, the population of sheep has also increased. One reason for this could be the imposition of a selective ban on the grazing of goats in forest lands in these states by the forest department. Another reason could be the expanding market for sheep meat.

Arid areas seem to be witnessing the sharpest decline in cattle population (cows and bullocks) and its replacement by buffaloes. Large numbers of cattle have been left loose in forest lands in the semi-arid districts of central Rajasthan, as a result of the droughts in 2008 and 2009.

In the unique bio-diversity of Kutch, buffalo rearing is exclusively on open grazing over a 3,000 sq km area. The cultural heritage and livelihoods based on livestock rearing in this region faced the critical test of survival till a few years ago.

The 3,000 sq km unique agro-ecological region of **Kutch, with its pastoral-based system is under extreme stress due** to various man-made and natural factors, but these are not the typical environmental and livestock intensity factors. According to Vinay Mahajan and Charul Bharwada, who have done intensive research on the livelihoods of the Banni pastoral systems, a series of events have in the recent past pushed this unique agro-ecological pastoral system of the Banni grasslands to the verge of extinction. These include successive droughts in the past few years, the destruction of the water-fodder balance by indiscriminate damming of water flows to the Banni grasslands, the construction of the 'India Bridge' that diverted sea water into Banni, the attempts by the forest department to carve out plots for tree plantation and fence these, the large-scale weed-like infestation of *Proposis Juliflora* restricting grazing, the allotment of land to companies that leads to encroachment and privatization in the otherwise traditional open grazing systems—has undermined not only livestock rearing but is also undermining the livelihood and cultural diversity of this region.

<sup>47</sup> Common lands and Poor Livestock Keepers; SA PPLPP documentation March 2009.



Fortunately, for Kutch, some recent positive developments have restricted, at least temporarily, the trend of the extinction of pastoral systems in Banni. These factors include two good rainfall years, opening up of two milk chilling plants and the cultural organizational work by the NGO Kutch Mahila Vikas Sangathan (KMVS) has helped in reviving pastoral livelihoods that were on the verge of extinction. The cultural work is significant in terms of the Hodka rural tourism centre that promotes and celebrates the pastoralist lifestyle and culture, the holding of annual pastoralist fairs, and the recognition of the Banni buffalo breed as a distinct breed from the Sindhi buffalo.

However, the future of the pastoral livelihoods of Kutch is uncertain. Livestock rearing is not secure. Land is being allocated to industry, and the pastoralist dwellers of this unique agro-ecological region, who had never laid claim to private land in Banni, are also being tempted to cut out private land plots. The most threatening issue is the proposed forest department plan to restrict open grazing by attaching plots of land to each of the 48 human settlements in Banni. Pastoralism as a way of life, and the unique and rich culture and diversity along with it, is threatened.

### 2.3 Managed CPRs: Key outcomes and benefits

The successful common lands development projects of FES, BAIF, Seva Mandir and other agencies demonstrate **different options of CPR management** over the years, with changes during years of drought and normal rainfall. In years of very low rainfall, open grazing is allowed as a norm because fodder shortages are felt immediately and it does not make sense for the community to restrict grazing. In a normal year, closure of protected CPRs is undertaken till Diwali (mid-Nov) and then, in some villages, open grazing is allowed often on a rotational basis (in some villages in FES projects in Rajasthan and Andhra Pradesh). In some other projects (BAIF and WOTR), the cut-and-carry system of fodder harvesting is followed and no grazing is allowed. In some instances, when regeneration of CPRs has led to the emergence of thick bushes and shrubs, permanent closure happens (witnessed in Rajasthan).

In understanding the **significance and extent of direct benefits from common lands**, in terms of increased fodder availability for livestock, the following factors play out:

- The **extent and scale of managed CPRs and open access commons available** (for example, forest lands, other commons that are not protected). In some of the successful project villages visited in Rajasthan, Orissa and Andhra Pradesh, the ratio of private agriculture land and open access land as compared to managed common lands was seen to be as high as 1:3.
- The **quality or productivity of common lands** for producing fodder for livestock. Even within a district, the rainfall intensity and the soil type can vary, producing markedly different levels of productivity on managed CPRs. This was witnessed in district Bhilwara in Rajasthan.
- **Other livelihood options and wage rates**—from migration, stone quarries and agriculture labour outside the village. This determines the effort and investment made by people in protecting, developing and sustaining complex management and protection systems and also the type of livestock they keep (small vs. large ruminants; stall feeding vs. open grazing).
- **Extent of irrigated agriculture** in the village. This can influence the level of effort and time that farmers can spare for livestock rearing and, thereby, their interest in developing and managing CPRs.

**Three scenarios of CPR-Livestock linkages**, as perceived by the community, emerge in central Rajasthan.

- Managed CPRs were contributing at least one-third of the annual fodder requirement for cattle and buffaloes.
- In most instances, with relatively better land quality of both the managed CPRs and open access grazing, the commons provided as much as 50 per cent of the fodder requirement for cattle and buffaloes and 100 per cent for small ruminants.
- In years of poor rainfall or drought years, managed CPRs provided 25 per cent of the fodder requirement for large ruminants, agriculture residue provided another 25 per cent, and the rest was deficit and was met either by purchasing fodder or reducing livestock numbers or underfeeding (and often a combination of all three).

The FES research on CPR contribution, in terms of dry matter (DM), shows a relatively higher ratio, as presented in Table 5.

**Table 5: Contribution of CPRs in Terms of Dry Fodder**

Village	Total Commons (in ha)	Average Gross Sown Area (in ha)	DM from Commons (in tonnes)	DM from Crop Residue (in tons)	DM required per annum (in tonnes)	% DM Available from Commons	% DM Available from Crop Residue
<b>FES-supported Villages (Rajasthan)</b>							
Thoria	261	33	616	500	1,687	36	30
Dhuwadiya	493	249.2	1,079	376	1,437	75	26
Sanjadi ka Badiya	175	176	728	199	570	128	35
Saredi Kheda	155	112	359	313	1,346	27	23
Amritiya	145	269	251	810	1,541	16	53
Bharenda	245	100.5	493	303	1,033	48	29
Cheetrawas	751	112.5	9,756	332	4,158	235	8
Dheemri	102	93	1,322	274	2,927	45	9
<b>BAIF-supported Villages (Rajasthan)</b>							
Jodha ka Kheda	320	306	220	545	909	24	60
Gudha Gokalpura	610	336	316	1,011	1,680	19	60
Average Rajasthan	326	209	1,514	416	1,729	65	33
<b>FES-supported Villages (Madhya Pradesh)</b>							
Bhanpura	156	135	840	352	1,139	74	31
Jagatpura	143	114	642	296	1,069	60	28
Karwakhedi	286	198	1,538	515	1,543	100	33
Rajakhedi	113	103	389	268	888	44	30
Rojani	104	370	178	962	1,019	17	94
Average Madhya Pradesh	161	184	717	479	1,132	59	43

The data presented in this table shows that in the project areas of Rajasthan and Madhya Pradesh, where FES had undertaken the development of common lands, the contribution of common lands to the fodder requirement is substantial; in some instances, more than the fodder from private agriculture lands. The average of 65 per cent DM requirements of livestock coming from the commons, for Rajasthan, is due to a relatively higher output from a few locations on account of the four factors mentioned above. In some villages (Chitrawas and Sanjadi ka badiya), with extensive lands under forests, fodder is plentiful and is auctioned for sale to outsiders.

The observations based on peoples' perceptions in this scoping study match these figures and appear to be reasonably accurate.

#### 2.4 Criticality of commons for livestock rearing

In the arid and semi-arid regions of the country, migration and wage labour currently contribute the major share of livelihoods for many rural households. Per capita landholding and the contribution from agriculture and livestock rearing for rural livelihoods is likely to go down further in the coming years. Livestock holding by the landless populations has gone down significantly in the last decade and even though livestock holding by marginal farmers has increased, this increase is not substantial and has resulted from many small and medium land-owning farmers falling in the category of marginal farmers. It is, therefore, also possible that many marginal farming households are holding less livestock than before or have become landless over the last few years and have lost their ability to own and maintain any livestock. Contribution of CPRs to livelihoods needs to be seen from this lens.

The extent of CPR contribution to livestock rearing varied between 33 and 50 per cent of the fodder requirement for bovine livestock populations, and small ruminants (goats and sheep) almost entirely subsist

on open grazing on CPRs. Different arrangements for managing CPRs range from free open access grazing post monsoon, to cut-and-carry systems and rotational grazing in different parts of the country for managed CPRs. Which of these options is viable in a managed CPR project context, depends a great deal on the extent of commons available, the potential for grazing and harvest from forest lands, the scale and fodder produce from CPRs. Livestock holding of the village, the extent of agriculture lands, the availability of crop residue, and external grazing pressure are other factors.

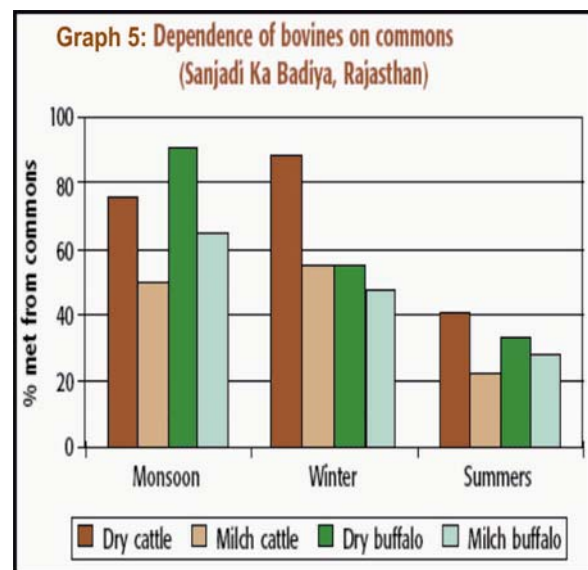
In a majority of instances where projects have succeeded in developing common lands for fodder, the preferred CPR management regime was found to be **controlled grazing post Diwali**. This helped in tiding over the critical winter season till the wheat harvest towards the end of March. A project of Seva Mandir in Udaipur, Rajasthan, reported that the **cut-and-carry system was a preferred option by the tribal community to tide over fodder scarcity by restricting open grazing**, in spite of facing regular fodder shortage and the high labour investment involved in cutting grass.

Hence **even where the CPR provided fodder for a relatively short period of the year, this was the most critical time period for marginal and small farmers to sustain their livestock.**

There is additional evidence to show that all types of livestock are dependent on commons. See **Graph 5**.

As detailed in the previous section, livestock rearing for sale of buffaloes is an option that is based on the **multiple and sequential livestock use of CPRs**, directly for open grazing of buffaloes as well as indirectly for fodder purchased from the sale of goats and sheep reared by small-holders and which are primarily grazed on CPRs.

The **sale of goats and sheep as liquid assets in times of crisis** is already well documented. The sale of buffaloes as milch assets is also emerging as a livelihood means, with the potential of marginal farmers rearing buffaloes for sale to farmers and to districts where these can be reared profitably. In arid regions like Kutch, bullocks are also reared for sale.



CPRs in this context are contributing to milk production and agriculture in other districts in a direct but significant way.

The **indirect benefits of CPR development** to agriculture and farm productivity are substantial. This is by way of water conservation and recharge structures, which are invaluable both as sources of drinking water for livestock as also ground water recharge of wells and hand pumps in agricultural lands in the vicinity. Increased agriculture productivity translates into increased fodder availability for livestock as well.

Therefore, to conclude, the criticality of CPRs for livestock is perhaps best understood from the above examples of how people recall this criticality. The contribution of commons to agriculture sustainability is the basis for dry-land farming systems. It is true that the change from cattle rearing for bullocks to buffalo rearing, and increased cash cropping has happened over the past three decades. The fact that cattle populations are no longer significant for sustaining subsistence agriculture-based livelihoods in rural areas, that goat and sheep populations have been increasing, and that buffalo and bullock rearing for sale is an emerging option for some is, perhaps, an indicator of livestock rearing becoming a commercial activity in dry-land areas. Its first major impact will be on declining agriculture sustainability, on account of reduction in dung manure and bullock power.

## 2.5 Contribution of CPRs to livestock development: Experience in different ecological regions

In different agro-ecological and social settings, a wide range of CPR-livestock-based livelihood patterns are observed. Livestock rearing in India was initially focused on producing bullocks for agriculture (for

ploughing and drawing water from wells) and, therefore, large cattle holdings were a requirement till the mid-1980s in the dry-land regions of India. Milk production was a secondary livestock rearing objective.

In the **semi-arid regions of western India**, cattle herds were annually grazed over a large area and migration of cattle into Madhya Pradesh and Maharashtra from Rajasthan was a norm. All this has now stopped not only because bullocks are being replaced by tractors but also on account of stringent restrictions on grazing by the forest department.

In the **sub-humid and humid states** of Orissa, Madhya Pradesh, Chhattisgarh and north Andhra Pradesh, which have a large proportion of tribal communities and forest areas, livestock rearing is still critical for producing bullocks and farm power (including transport). Unlike parts of Rajasthan, where cattle rearing is now being discarded and cattle are abandoned in forests and left in the open (something that was unthinkable a few decades ago), in tribal regions with good grazing potential, bullocks are being reared and they command a reasonably good market price (between Rs 10,000 and 30,000 a pair in the Angul district of Orissa). However, the national trend of cattle going out of favour is witnessed here as well in terms of the low market/sale value of *desi* (nondescript) cattle (Rs 700 to 2,500 for a *desi* cow). There are two distinct trends visible:

- Where access to forests is restricted or where there is severe forest degradation, the dependence on CPRs for livestock grazing and for NTFPs is limited.
- Where access to forests and managed CPRs is open and there is sufficient grazing potential, the livestock holding is more equitable at the village level. The two most important constraining factors are access to forest areas for grazing and the availability of household labour for shepherding the cattle for open grazing. Complex arrangements are made between different classes of land-owning farmers and others for rearing cattle and buffaloes through open grazing where the rearer is entitled to a share in the progeny and milk. For higher value livestock assets (for example, buffaloes), the owner claims the progeny whereas the rearer keeps the milk.

In the **flood plain regions of Uttar Pradesh and Bihar**, livestock rearing is constrained by very limited open grazing options for marginal farmers and the landless, and, hence, there are fewer opportunities for them in rearing goats and sheep. As reported from a secondary research study in the previous section, livestock holding in these densely populated areas is only 1 bovine and 1.6 small ruminant on an average per household<sup>48</sup> thereby highlighting the importance of common lands and grazing options for livestock rearing.

In **dry-land regions**, livestock rearing is under intense pressure. In central Rajasthan, the average per capita agriculture land holdings are very small (less than 1 ha) yet absolute landlessness is not significant. Agriculture here is in a stage of transition from relatively larger ownership and vast open grazing lands, to small household level landholdings with limited irrigation potential and a significant reduction in access to open grazing. The agro-pastoral system of central Rajasthan is, therefore, under a crisis of sustainability.

The change in livestock holding pattern reflects this attempt to cope with the change in both fodder availability and the market for meat and livestock sale as opposed to milk sale. In central Rajasthan, two distinct scenarios were observed for rural livelihoods with livestock:

1. **Agro-pastoral livelihoods in relatively arid regions.** In eastern Bhilwara district, where rainfall is less than 400–500 mm/yr and where the extent of productive common lands is not enough to support dairying, livestock rearing for sale is the preferred livestock-based livelihood option. In order to cope with fluctuating and uncertain fodder availability, tractors have emerged as a cheaper farm power option. Bullocks and increasingly cows are being replaced on a massive scale by buffaloes.
  - ⇒ It was observed that, on an average, only 30 per cent households kept bullocks.
  - ⇒ Fifty per cent of households rear at least one buffalo, depending on land ownership and fodder availability. The rearing of buffaloes is for sale and not for milk. Once the buffalo reaches the calving age (3 years), it is sold.
  - ⇒ Milk production potential in these areas is, therefore, limited. The average price of milk at village tea shops on the main road is only Rs 20/kg.

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<sup>48</sup> Crop-livestock interactions in the Indo-Gangetic plains of Bihar; ILRI study, 2006.

⇒ Small ruminants are reared by all castes and farmers (large and small) because there is a ready market for their sale. Sometimes, these are sold for securing fodder for the buffalo in times of scarcity (because a buffalo fetches as much as Rs 20,000 as compared to Rs 1,000 to 2,000 for a 6- to 12-month-old goat).

2. **In agro-pastoral livelihood systems**, where rainfall is more than 600 mm/year and where the extent of productive common lands is significant, within the same district (Bhilwara) and across districts (Bundi vs. Bhilwara), the options and patterns of livestock-based livelihoods change significantly:

⇒ Cattle and bullock holding is larger as compared to the eastern part of Bhilwara district.

⇒ Buffaloes are the preferred milch cattle. The goat and sheep holding per household is relatively lower.

To conclude, in project areas where we witness a relatively larger extent of common lands (as a proportion of private agriculture lands) and also lower numbers of landless people as compared to state averages, the potential and the impact of development of common lands is favourable across all land-owning classes of people.

We find that the average livestock holding of all types of livestock increases for all categories of farming households post the project and the benefits are shared equitably by the landless and marginal farmers with large farmers. This is evident from the SA PPLPP documentation of results for Rajasthan and is validated by the results from Madhya Pradesh, as presented in Table 6a.

**Table 6a: Rajasthan: Benefits from Common Land Development for Livestock and Household Categories**

Category	Landless	Marginal	Small	Medium	Large
<b>RAJASTHAN</b>					
% households	15.4	41	15.9	13.7	14
<b>Distribution of livestock (%)</b>					
Cattle	0.7	39.9	14.7	16.6	28
Buffalo	0.4	36	18.9	22.8	21.9
Total bovine	0.6	38.1	16.6	19.5	25.2
Total ovine	1.2	46	11.2	12.8	28.9
<b>Size of livestock holdings (no./household)</b>					
Cattle	0.06	1.31	1.25	1.63	2.68
Buffalo	0.03	1.01	1.36	1.91	1.79
Total bovine	0.09	2.31	2.61	3.54	4.47
Total ovine	0.23	3.36	2.11	2.79	6.15
<b>RAJASTHAN (STUDY VILLAGES)</b>					
% households	1.8	48.4	33.3	12.6	3.9
<b>Distribution of livestock (%)</b>					
Cattle	2.48	44.57	56.34	12.9	3.7
Buffalo	0.73	33.6	39.94	16.96	8.77
Total bovine	1.94	41.21	37.44	14.15	5.26
Goat	2.37	40.33	38.69	13.66	4.94
Sheep	0.04	45.33	41.22	11.75	1.66
Total ovine	1.54	42.04	39.65	13	3.77
<b>Size of livestock holdings (average/household)</b>					
Cattle	4.31	2.91	3.45	3.23	3.03
Buffalo	0.56	0.97	1.68	1.88	3.18
Total bovine	4.88	3.88	5.13	5.12	6.21
Goat	7.06	4.52	6.28	5.86	6.91
Sheep	0.06	2.82	3.72	2.8	1.29
Total ovine	7.13	7.32	10.01	8.66	8.21

As compared to the state average for livestock holding per household in Rajasthan in 2003, the data from the project villages of FES show that the ownership (size of livestock holding) of livestock by all categories of landowners and, significantly, by the landless and marginal farmers, is much higher than the state-level average.

We see a similar pattern, although in a lower measure, in the Madhya Pradesh project areas in Table 6b.

A feature of the regions with high proportion of common lands alongside private agriculture lands is that the proportion of landless households is relatively lower. Hence, equity in benefits of both CPR development and its outcome, in terms of access to the benefits of developed CPRs (water, fodder, fuel wood, other non-timber produce) is much more equitably distributed.

The NSSO (1999) estimate of the **contribution of CPRs to household annual income** was found to be very low at 3.2 per cent. The NSSO survey did not factor in the value of grazing on the commons and various other critical inputs to household needs and agriculture (such as wood for farm implements, material for housing, fencing and non-timber forest produce, NTFP). In a recent study by the Foundation for Ecological Security<sup>49</sup> in seven states of the country focused on interventions related to common land development and regeneration, the attribution of the contribution of common lands to household annual income, using all these variables, came to 23 per cent and this was significantly higher than the percentage derived from MGNREGA income<sup>50</sup>. The attribution of common lands to the incomes of landless and tribal households was higher at 31 and 28 per cent, respectively.

**Table 6b: Madhya Pradesh: Benefits from Common Land Development for Livestock and Household Categories**

Category	Landless	Marginal	Small	Medium	Large
<b>MADHYA PRADESH</b>					
% households	24	37.5	17.8	13	7.7
<b>Distribution of livestock (%)</b>					
Cattle	1.1	36.2	23	23.6	16.1
Buffalo	0.5	23.2	25.3	24.1	26.8
Total bovine	1	33.4	23.5	23.7	18.4
Total ovine	4.4	50	24.8	10.7	10.1
<b>Size of livestock holdings (no./household)</b>					
Cattle	0.1	2.01	2.7	3.378	4.36
Buffalo	0.01	0.36	0.83	1.08	2.02
Total bovine	0.11	2.37	3.52	4.85	6.39
Total ovine	0.09	0.63	0.66	0.39	0.63
<b>MADHYA PRADESH (STUDY VILLAGES)</b>					
% households	11.9	29.8	27.47	24.04	30.01
<b>Distribution of livestock (%)</b>					
Cattle	3.37	15.12	27.47	24.04	30.01
Buffalo	2.9	10.5	26.5	20	40.1
Total bovine	3.2	14	27.2	23.1	32.4
Total ovine (goats)	6.8	26.1	27.8	19.8	19.5
<b>Size of livestock holdings (average/household)</b>					
Cattle	1.1	1.9	3.8	5.2	8.5
Buffalo	0.28	0.41	1.15	1.33	3.5
Total bovine	1.36	2.34	4.99	6.48	11.97
Total ovine (goats)	1.25	1.9	2.22	2.43	3.15

<sup>49</sup> Draft Report, Foundation for Ecological Security: A Commons Story: In the Rain-shadow of the Green Revolution, FES, 2010.

<sup>50</sup> Draft Report, Foundation for Ecological Security: A Commons Story: In the Rain Shadow of the Green Revolution, FES, 2010.

## Section 3

### Recommendations

In arriving at the recommendations from this study, the priorities for development of CPRs for livestock rearing from a poverty reduction perspective have been considered.

#### 3.1 Estimation of common lands

Common lands are under intense pressure of encroachment and usurpation by the elite. A recent report by the Department of Land Resources (DoLR) recognizes the entitlements of the poor over these common lands. “It should be **unequivocally recognised that it is the landless poor who have the first charge on the cultivable Wasteland and other Government lands whose changed land use permit leasing out of the community and that it cannot be ceded outside the community.** (Ownership of the poor and the marginalised over lands should be recognised as a community and collective right)”<sup>51</sup>.

As per the 1999 NSSO report, the estimation of CPRs was done based on a *de jure* classification, only taking a few of the categories of the nine-fold land-use classification as commons. The estimate of 15 per cent CPRs is based on “only those land resources...which were within the boundary of the village and were formally (i.e. by legal sanction or official assignment) held by the village *panchayat* or a community of the village.” This clearly shows that there is a lack of clarity on the definition of what constitutes common lands and, as a result, on the estimation of commons and on the reluctance of the government to allow local communities, who live near these commons, to have any say in their management and use.

Heartening, therefore, is the recommendation of DoLR in this report that “There should be a survey of all Government lands, including Wasteland, along with their use either as a part of the general survey or separately. The **enumeration of Wastelands should be done as an exercise for measuring de facto common property resources as well.** To identify and estimate the magnitude of CPRs in the country the **National Sample Survey Organization should enumerate this in every round of its survey**”.

Considering the lack of recognition of common property land resources in official land records, the suggestion of the DoLR report that, as per the nine-fold land classification, **CPRs should be monitored for the following land-use categories is a positive development:**

1. Cultivable wastes and fallows other than current
2. Common pastures and grazing land
3. Protected and unclassified forests
4. Barren, uncultivable and other government wastelands that are being used for common purposes

Following the above categorization, nearly 25 per cent of land-use in India is then classified as *de facto* CPRs. The monitoring of common lands as per the above classification should, therefore, be taken up on priority.

#### 3.2 Ownership of CPRs: *Gram panchayats*

Merely classifying land-use categories as commons will not be enough. Policy directions on who has the power to change land-use, and the process to be followed for using these lands need to be clarified. Currently, the various departments of the government (land revenue, forests, mining and others) have a unilateral right to take over these lands (usually under the justification of national interest) and allocate them to other uses, both private and public, without seeking the approval of local communities/villages.

The DoLR report recommends “**The Wasteland should be under the management of the Gram Sabha as is the practice in several States** including the assignment of land to the landless poor. No Wasteland is to

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<sup>51</sup> Report of the Committee on State Agrarian Relations and Unfinished Task of Land Reforms, Department of Land Resources, Ministry of Rural Development, Government of India, p. 18.

be assigned on a permanent basis. (Should they be distributed is also questionable as it might not lead to any long term changes in landholding profile in the village).”<sup>52</sup>

The problem of allocation of commons to the landless is that this has been done in many states when, in place of allocation of commons, it was private agricultural lands that were supposed to have been re-distributed. Mere allocation of poor quality common lands, particularly in the dry semi-arid and arid regions of the country, does not help in transforming them into cultivable lands. Usually ownership of such lands allocated to the landless falls back into the hands of the rural elite or the mining and builder mafia.

### 3.3 Sustaining developed CPRs

There is urgent need to recognize and support the sustainable development of common lands for ecological and livelihood support for the poor. The evidence from the successes of common land development interventions over the last 20 years all over India, in different social and physical contexts, is evidence of the viability of developing commons to serve the interests of the poor and the ability of local institutions to keep them in some form of local institutional management with virtually no external funding support.

Towards recognizing the importance of common lands as a livelihood base for the landless and marginal farmers, the starting point could be instituting some reward scheme to honour villages and hamlets that have protected and developed their common lands. Norms can be developed for such a reward/recognition scheme and this could include criteria of more than five years of successful work, protection of water resources from over-exploitation, and ensuring that both small and large ruminant herders get equitable and fair access to commons.

However, it must be appreciated that **common lands, once developed, will need investments in repair and reconstruction of damaged assets** (such as water conservation structures, protection stone walls, and re-seeding of grasses and fodder seeds). It cannot be left to the local CPR management bodies to find resources or depend on voluntary contributions from the community. Linked with this is the need to build the capacity of the institutions managing commons, to access existing programmes and funding opportunities for sources to sustain the commons.

Another **critical input for sustaining the development of commons is the management practices for improved productivity and multiple use of commons**. For example, thinning and pruning, eliminating predatory species of trees that allow for rotational grazing may require management regimes that are not exclusively conservationist in outlook. This work would also need some operational funds. Such a management regime would not be exclusionary, as is the case with some management practices that promote cut-and-carry fodder management systems.

The MGNREGA provides institutional funding and a rights-based entitlements framework for supporting common land development work. However, **the tendency so far has been to create new infrastructure and not to repair and maintain developed assets**, and, therefore, the focus on development of new water harvesting structures and village roads. Investment in repairs and maintenance, in watch and ward, and in gap filling for common land development is left out from the prioritization of activities under MGNREGA. Given that the MGNREGA guidelines are sufficiently broad, the priority for maintenance and development of CPRs needs to be placed on the agenda of activities through improved information dissemination and better advocacy.

**Leaving the entire funding for common lands repair and maintenance to the MGNREGA funding may also not be advisable**. Specific investments in labour and material may be difficult to justify in MGNREGA. Hence, if dedicated funding for operations and maintenance of developed CPRs is provided, it will supplement MGNREGA.

There is also need to **assess/advocate for additional sources of funding for communities for protecting CPRs**. This needs to be explored from national sources such as NABARD and from international sources

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<sup>52</sup> Report of the Committee on State Agrarian Relations and Unfinished Task of Land Reforms, Department of Land Resources, Ministry of Rural Development, Government of India, p. 18.



including the climate change mechanisms of carbon credits and REDD. There is, however, a risk that these sources of funding come with restrictions on land-use (thinning and pruning once assistance is secured).

### 3.4 Prioritizing livestock development

Given the change in livestock holding from large ruminants to small ruminants, there is significant gap in the provision of health and veterinary services, as also knowledge and extension for small ruminant rearers.

There is, therefore, urgent need for advocacy and demand on the state governments to improve the service delivery of veterinary care for small livestock, at the village level.

Given the emergence of the buffalo as a milch animal asset, public investment in increasing milk collection from remote rural habitations, and improved systems for storage and transportation of milk are desired public policy and poverty reduction strategies. Common lands do support the grazing of buffaloes and cross-bred cows. To secure the full potential of common land development for livestock-agriculture, it is important to secure public funding and milk marketing in remote dry-land areas. Otherwise, the valuable contribution of manure and farm power from livestock will be marginalized. The productivity potential of the commons to secure fodder for multiple livestock use will be compromised.

Since livestock trading is emerging as a major economic activity, a register to record sale and purchase, death and disease is essential at the local level. It is also important to secure management arrangements, with the support of the *gram panchayats*, for breeding bulls, bucks and rams in the village.

### 3.5 Strengthening CPR Institutions

Commons suffer from an institutional regime that is unable to adequately protect, develop and maintain CPRs in the long-run.

**Better coordination is required for villages/hamlets, with both Joint Forest Management (JFM) committees and *charagah* development committees.** The responsibility for securing the same must lie with the JFM committees because they have an institutional home (the forest department) and they need to be more open to engage with other committees and common property management issues. It is observed that in the absence of coordination, sharing common resources for rotational grazing and for enforcing norms for closure and selling of produce, access to outsiders for harvesting grass specially in the JFM areas – are not agreed upon in any joint forum with the *charagah* protection committee or even with the Panchayat. Both the JFM committees and the *charagah* management committees must report to the *panchayat*.

The experience of projects in developing commons as village woodlots or grazing lands shows that informal institutions and committees created in the process of investment and development of the commons do not have a legal standing. When the investment in development of the commons takes place, local communities come together under an informal management committee that does not discriminate against anyone and is able to coordinate the development of the commons. Once the project comes to an end, however, sustaining the developed commons resource is difficult in an informal setting.

The common lands protection committees or any other informal institutions on non-forest lands in non-scheduled areas and, perhaps, on forest lands in scheduled areas should be accorded recognition as sub-committees under the *gram panchayats*.

Support for accounting and record-keeping should be provided to these sub committees to be able to execute management and other works as suggested in a previous point.

Federating village/hamlet common lands protection committees into block-, district- and state-level bodies will also help in strengthening the management of common lands. This will require some funding support to facilitate at least two meetings in a year, some knowledge and learning activities, including exposure visits and documentation.

### 3.6 Policy support for commons

There is no denying the fact that the commons are in need of special attention. The bulk of the milk and the meat industry, the livelihoods of a significant rural population and the ecological sustenance of land resources depend a great deal on how we manage our remaining commons in the years to come. Programme and policy initiatives at both the state and the national levels are required to ensure that the commons are developed and protected.

**The future of common lands suffers from the lack of a nodal government agency that deals with all the CPRs** at the state and the national levels. In the absence of basic monitoring of the status of common lands, possibilities for encroachment remain high. CPRs are, therefore, usurped by the elite (landowners, corporate, builders, mining companies and contractors), handed out to landless and socially marginal groups for electoral gains, or privatized for agriculture and subsistence land-use by poorer communities.

After the advent of MGNREGA, common lands are valued for their employment and asset creation potential. Under the Forest Rights Act (FRA), grazing rights for communities that have a traditional claim on forest lands is recognized by law. However, very few community rights have been settled by the forest department.

Considering the plethora of government established 'National Missions' for specific purposes and the vested interests involved in seeking open access to common lands and also forest lands, it is unlikely that a separate new initiative of setting up a 'Mission for Revitalization of Commons' is likely to materialize. Experts advise that seeking a solution within the existing framework of MGNREGA or FRA may be the best way forward in securing momentum in protecting and developing the commons. It is, therefore, recommended that in order to ensure that common lands support the ecological and livelihoods security of the poorest rural communities, policy guidelines that focus on the development of common lands for fodder for livestock will promote these ends. Hence, the setting up of a **'Fodder Mission' is proposed, which will accord priority to the regeneration and sustainable management of common lands as a key fodder source.** The role of this Mission could include monitoring the status of common lands, identifying common lands for development by reputed agencies and NGOs in different states, seeking funds from the government and other sources for supporting the development of common lands, coordinating and facilitating convergence with other departments and programmes for funding opportunities for common land development as also improving livestock services, etc.

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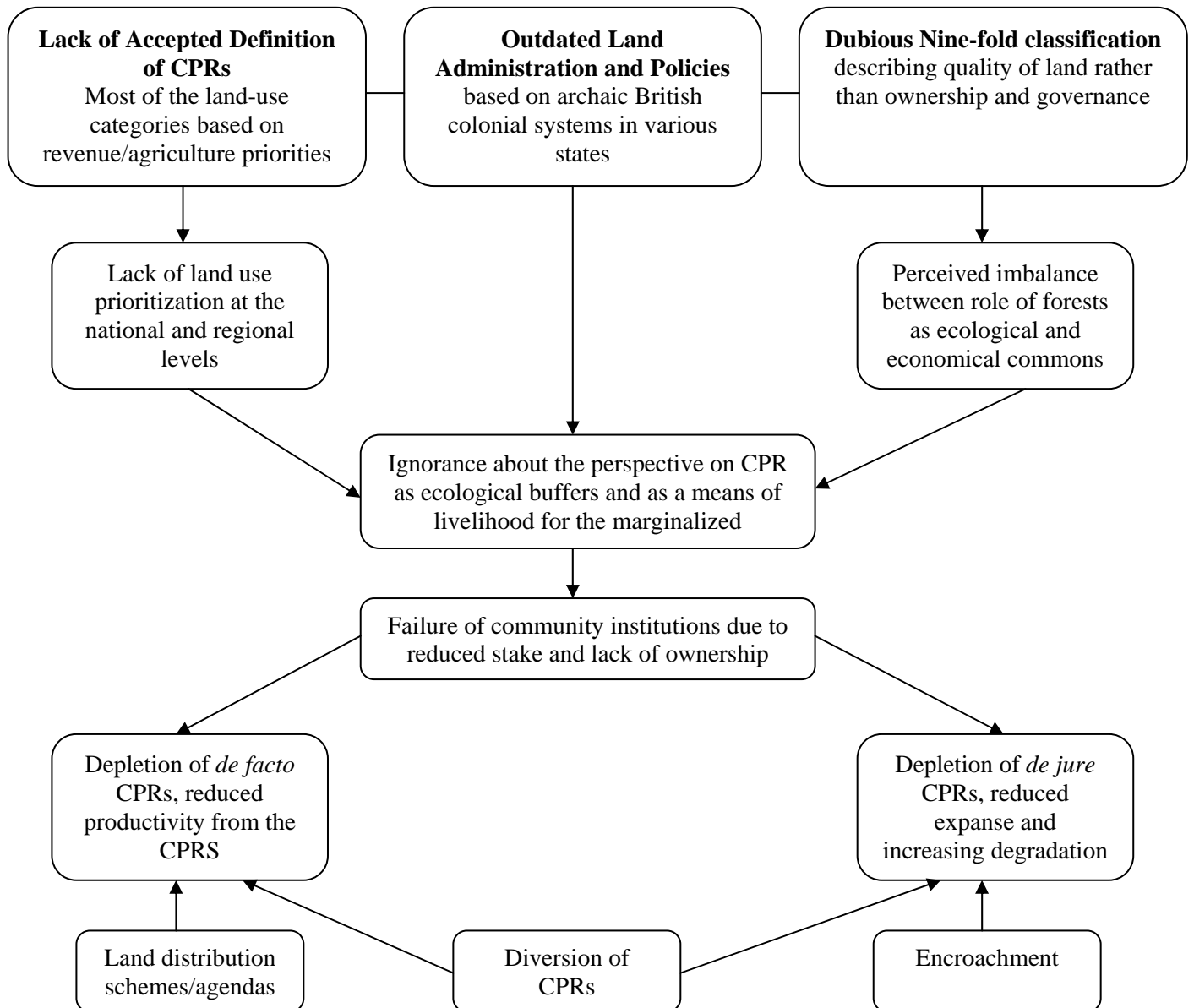
**Appendix 1**  
**NSSO Estimates of Common Property Land Resources in Rural India**

<b>Item</b>	<b>Estimate</b>
1. Percentage of common property land resources in total geographical area	15
2. Common property land resources per household (ha)	0.31
3. Average household size	5.04
4. Common property land resources per capital (ha)	0.06
5. <i>Components of common property land resources: (percentage)</i>	
• Community pastures and grazing grounds	23 (3.45%)
• Village forests and wood-lots	16 (2.40%)
• Others	61 (9.15%)

*Note: The figures in parentheses in Item 5 represent percentage to geographical area.*

*Source: Report No. 452: Common Property Resources in India, Jan - June 1998, NSS 54th Round*

**Appendix 2**  
**Institutional Crisis of the Commons**  
*(Source: Department of Land Revenue Report)*



**Appendix 3a**  
***De facto* Common Land Availability in Different States of India**

State	Area Owned Per Household* (ha)	CPR Land Per Household (ha)	Percentage of CPR Land to Geographical Area
Andhra Pradesh	0.67	0.17	9
Arunachal Pradesh	1.52	1.15	-
Assam	0.79	0.05	7
Bihar	0.59	0.08	8
Gujarat	1.17	0.72	27
Haryana	1.00	0.05	3
Himachal Pradesh	0.73	0.33	12
Jammu and Kashmir	0.68	0.14	-
Karnataka	1.23	0.25	10
Kerala	0.28	0.12	-
Madhya Pradesh	1.52	0.74	22
Maharashtra	1.08	0.30	11
Manipur	0.66	0.17	-
Meghalaya	1.02	0.72	-
Mizoram	0.36	4.37	-
Nagaland	2.68	1.49	8
Orissa	0.58	0.28	11
Punjab	0.94	0.02	1
Rajasthan	2.21	2.04	32
Sikkim	0.49	0.25	14
Tamil Nadu	0.35	0.16	12
Tripura	0.30	0.01	1
Uttar Pradesh	0.74	0.14	12
West Bengal	0.33	0.03	2
India	0.84	0.31	15

\* The estimates given in this column are taken from the NSS Report No. 451: Cultivation Practices in India, NSS 54<sup>th</sup> Round.

*Source: Report No. 452: Common Property Resources in India, Jan - June 1998, NSS 54th Round*

**Appendix 3b**  
***De facto* Common Lands Availability in Different Agro-ecological Regions of India**

<b>Agro-climatic Zone</b>	<b>Percentage of CPR Land to Geographical Area</b>	<b>CPR Land Per Household (ha)</b>	<b>Average Household Size</b>	<b>CPR Land Per Capita (ha)</b>
Lower Gangetic plains (LG)	1	0.02	5.02	0.00
Upper Gangetic plains (UG)	2	0.03	5.38	0.01
Middle Gangetic plains (MG)	8	0.07	5.69	0.01
Trans-Gangetic plains (TG)	5	0.07	5.61	0.01
All islands (Isl)	9	0.12	4.41	0.03
East coast plains and hills (EG)	12	0.15	4.28	0.04
Western coast plains and hills (WC)	10	0.16	4.57	0.04
Eastern Himalayas and Brahmaputra valley (EHm)	5	0.18	5.08	0.04
Southern plateau and hills (DP)	9	0.18	4.36	0.04
Western plateau and hills (WHg)	10	0.29	5.10	0.06
Eastern plateau and hills (EHg)	19	0.44	4.78	0.09
Western Himalayan (WHm)	33	0.49	5.00	0.10
Central plateau and hills (CHg)	20	0.65	5.23	0.12
Gujarat coast plains and hills (GC)	27	0.71	4.95	0.14
Western dry region (TD)	38	4.77	5.75	0.83
India	15	0.31	5.04	0.06

*Source: Report No. 452: Common Property Resources in India, Jan - June 1998, NSS 54th Round*

## Appendix 4

### Rate of Reduction in CPR Land during 1993-98 in each Agro-climatic Zone (NSSO Estimates 1999)

Agro-climatic Zone	Percentage of CPR Land to Geographical Area	CPR Land Per Household (ha)
Western Himalayas (WHm)	2	0.49
Eastern Himalayas and Brahmaputra valley (EHm)	23	0.18
Lower Gangetic Plains (LG)	26	0.02
Middle Gangetic Plains (MG)	72	0.07
Trans Gangetic Plains (TG)	71	0.07
Upper Gangetic plains (UG)	28	0.03
Eastern Plateau and Hills (EHg)	50	0.44
Central Plateau and Hills (CHg)	15	0.65
Western Plateau and Hills (WHg)	13	0.29
Southern Plateau and Hills (DP)	43	0.18
East Coast Plains and Hills (EG)	13	0.15
West Coast Plains and Hills (WC)	0	0.16
Gujarat Coast Plains and Hills (GC)	1	0.71
Western Dry Region (TD)	2	4.77
All Islands (Isl)	5	0.12
India	19	0.31

*Source: Report No. 452: Common Property Resources in India, Jan - June 1998, NSS 54th Round*

**Appendix 5**  
**Major CPR Contribution as Per NSSO Report 1999**

Category of Households	Percentage Distribution by Material Category				Value of Collection Per Household (Rs)
	Fuel Wood	Fodder	Other	All	
Rural labour	61	25	14	100	777
<i>Others with land possessed</i>					
Less than 0.20	47	21	32	100	588
0.20 – 0.50	57	27	16	100	749
0.50 – 1.00	53	29	18	100	679
1.00 or more	59	26	15	100	593
<i>Others: All</i>	54	26	20	100	630
All households	58	25	17	100	693



### *List of Abbreviations*

AC	Agricultural Census
ASF	Animal Sources of Food
ASI	Agricultural Statistics of India
CALPI	Capitalisation of Livestock Programme Experiences India
CISED	Centre for Interdisciplinary Studies in Environment and Development
CLFMA	Compound Livestock Feed Manufactures Association of India
CPR	Common Property Resources
DM	Dry Matter
DoLR	Department of Land Resources
FAO	Food and Agriculture Organisation of the United Nations
FES	Foundation for Ecological Security
FRA	Forest Rights Act
FSI	Forest Survey of India
GDP	Gross Domestic Product
GIDR	Gujarat Institute of Development Research
GOI	Government of India
HA	Hectare
ICAR	Indian Council of Agricultural Research
IFPRI	International Food Policy Research Institute
IIM	Indian Institute of Management
ILRI	International Livestock Research Institute
JFM	Joint Forest Management
KMVS	Kutch Mahila Vikas Sangathan
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
NABARD	National Bank for Agriculture and Rural Development
NAP	National Agricultural Policy
NBAGR	National Bureau of Animal Genetic Resources
NGO	Non Government Organisation
NSS	National Sample Survey
NSSO	National Sample Survey Organisation
NTFP	Non Timber Forest Products
REDD	Reducing Emissions from Deforestation and Forest Degradation
SA PPLPP	South Asia Pro Poor Livestock Policy Programme
SFR	State of Forest Report
UN	United Nations
WOTR	Watershed Organisation Trust

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